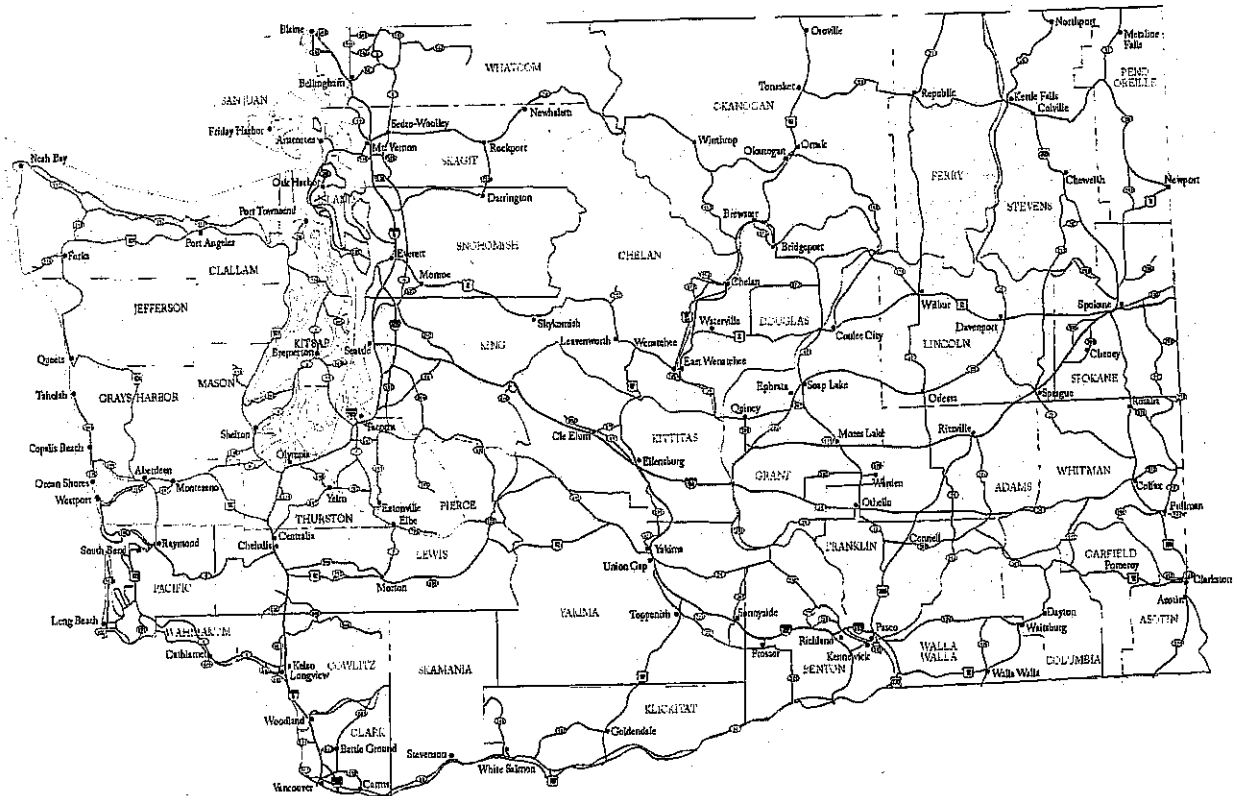


State Route 160 Route Development Plan

State Route 16 to Southworth Ferry



Washington State
Department of Transportation
Olympic Region



**Washington State
Department of Transportation**

Sid Morrison
Secretary of Transportation

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June 15, 1998

A Message to the Reader,

We are pleased to announce that the Washington State Department of Transportation (WSDOT) has reached completion of the State Route 160 Route Development Plan. Enclosed is a copy of this document for your information and future reference.

This Route Development Plan outlines a vision for the future development of SR 160 by recommending improvement strategies for existing and future deficiencies of the transportation system along the SR 160 corridor. The WSDOT would like to thank all the steering committee members and citizens who took an active part in developing this vision and recommendation for the SR 160 corridor.

This final version of the SR 160 Route Development Plan includes many of the comments and suggestions received from the steering committee members and WSDOT executives who reviewed this document. Any future comments or suggestions will be kept with the project files.

If you have any questions, please call Chris Schroedel at (360) 357-2763.

Sincerely,

Robert E. Jones
Transportation Planning Manager
WSDOT Olympic Region

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIC REGION
TUMWATER, WASHINGTON

**ROUTE DEVELOPMENT PLAN
STATE ROUTE 160**

SR 16 Interchange to Southworth Ferry Terminal
MP 0.00 TO MP 7.47

MAY 1998

**GARY F. DEMICH, P.E.
REGION ADMINISTRATOR**

**ROBERT E. JONES
TRANSPORTATION PLANNING MANAGER**

Participating Agencies and Individuals

The following individuals participated in the creation of the *SR 160 Route Development Plan* and attended one or more Steering Committee meetings.

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Representing Kitsap County

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WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIC REGION

ROUTE DEVELOPMENT PLAN
STATE ROUTE 160

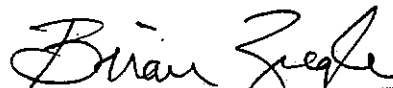
SR 16 Interchange to Southworth Ferry Terminal
MP 0.00 TO MP 7.47

Approved By:


Region Administrator, Olympic Region

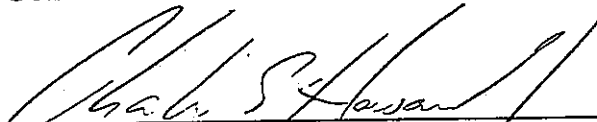
May 28, 1998
Date

Concurrence:


State Design Engineer, O.S.C.

6/15/98
Date

Concurrence:


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6/16/98
Date

Vision Statement

An efficient network of transportation facilities in the Puget Sound Region is vital to moving people and goods. Transportation affects us all—our lives and livelihoods depend a great deal on an efficient transportation system that offers opportunities for various choices and modes of travel. To many extents our transportation facilities have served our travel needs, but they were constructed to accommodate a population of the past. It is evident that many transportation facilities in the Puget Sound region are now experiencing their service limits.

Many citizens are discovering that the Puget Sound Region offers an exceptional environment in which to live and work. The demands on our state highways have escalated as the population of the region has increased.

In 1990 the Legislature passed, and Governor Gardner signed into law ESHB 2929, commonly known as the Growth Management Act (GMA). GMA requires all cities and counties in the state to do some planning. It calls for the fastest growing counties, and cities within them, to plan extensively in keeping with the following state goals:

- Conservation of important timber, agricultural and mineral resource lands.
- Protection of critical areas.
- Planning coordination among neighboring jurisdictions.
- Consistency of capital and transportation plans with land use plans.
- Early and continuous public participation in the land use planning process.

The basic objective of the legislation is to guide and encourage local governments in assessing their goal, evaluating their community assets, writing comprehensive plans, and implementing those plans through regulations and innovative techniques that encompass their future vision. The state's main role under GMA is to assist and enable local governments to design their own programs to fit local needs and opportunities. This "bottom up" approach is consistent with Washington's long-held tradition of local governments.

In order to assure an efficient transportation system for the future, it is important to plan for the growth that continues to occur. A *Route Development Plan* (RDP) is conducted to provide strategies to existing and future deficiencies of the transportation system. This RDP discusses specific improvements needed along State Route 160.

These improvements and goals for the future are best achieved through cooperative planning efforts and consensus with affected local and regional jurisdictions. This *Route Development Plan* was prepared in such a way. The State Route 160 Steering

Committee members provided many valuable contributions in the development of this RDP. They shared with the committee their respective agency Comprehensive Plans and transportation goals, policies, and targeted highway improvement projects. The Committee created a set of Objectives and Alternative statements that, in conjunction with local Comprehensive Plans and the *WSDOT State Highway System Plan*, provided the impetus for what is recommended in this Route Development Plan.

SR 160 Route Development Plan Study Limits

The study limits of this RDP include the entire length of SR 160, beginning at the SR 16 Interchange in Port Orchard and ending at the Southworth Ferry Terminal, with additional information provided regarding the Washington State Ferry's long range service plans for routes that link SR 160 to the Seattle area. This ferry service is officially defined as an extension of State Route 160.

Organization of this Report

This *SR 160 Route Development Plan* is organized by topics. To begin, Chapter 1 introduces the route by describing existing conditions such as highway alignment, geometric cross sections and right-of-way, along with mention of classification systems such as state and federal functions and the Access Management Plan.

Land use zoning and travel demand information is presented in Chapter 2. Highway operating conditions are summarized, and tables are provided that highlight existing and future levels of service for highway segments and selected intersections.

Chapter 3 presents the Steering Committee's recommendations for highway improvements and public transportation services.

Appendices provide the remaining information such as a history of Steering Committee and public meetings, letters of comment on the Plan from stakeholders, the public involvement processes used, including a public survey, and a brief review of environmental issues along the corridor.

Stakeholder Involvement

A Steering Committee was formed to guide transportation decisions and reach a common vision on issues discussed in this *RDP*. This committee included representatives from the City of Port Orchard, Kitsap County, Kitsap Transit, the Puget

Sound Regional Council, Washington State Ferries, and the Washington State Department of Transportation.

The Steering Committee conducted two public open houses to present information and solicit comments from the public regarding this plan. Additionally, a public opinion survey was conducted of travelers within the SR 160 corridor.

Steering Committee Recommendations

The recommendations in this *Route Development Plan* represent the planning efforts of several working meetings with stakeholder agencies, and discussions with the traveling public. As growth continues along the SR160 corridor and in the region, the recommendations contained herein will serve as a development guide, to be used by WSDOT and local and regional jurisdictions, in an effort to keep SR 160 operating in an efficient manner. The recommendations reflect stakeholder agency policies and sound engineering judgments. Future decisions, such as during the detailed design/environmental phases of improvement projects, should not be based solely on the planning-level recommendations in this plan.

To aid the steering committee in reaching consensus on issues such as mobility, access management, and highway design speed and non-motorized improvements, a literature review was performed. From this effort, documents such as city, county, and transit comprehensive plans were consulted. Additionally, several WSDOT plans were examined, including the *State Highway System Plan*. The *WSDOT Access Management Plan* classifications of SR 160 influence the type of roadway median sections proposed as part of the mobility recommendations.

Summary of Recommendations

Roadway Improvement Recommendations

- **Widen State Route 160 from SR 16 to Long Lake Road**
Create a four lane roadway with sidewalks and bike lanes and a raised median. The proposed highway median for this segment will serve to reduce the total number of conflicting vehicle movements such as left turns and crossing maneuvers, particularly at minor intersections and private driveways. Under this plan, full intersection access will remain at the public road intersections of Geiger Road, Bethel Road, Converse Avenue, Jackson Avenue, Phillips Road, and Long Lake Road.

- Between Long Lake Road and the Southworth Ferry Terminal, no additional through travel lanes are recommended. The *WSDOT Access Management Plan* will continue to provide guidance related to the permitting of future road approaches.
- **Provide Sidewalk and/or Shoulder Improvements Entire Route**
The Steering Committee heard many concerns from the public regarding pedestrian safety along SR 160. The committee recommends that the entire route be improved to better serve non motorized travelers, by constructing paved shoulders and/or sidewalks. The South Kitsap School District provided their "walk route plans" for the three schools in the vicinity of Sedgwick Road. This information aligns with and supports the Steering Committee's recommendations to improve pedestrian travel options.

Public Transit Service and Park and Ride Lots

- The *SR 160 Route Development Plan* incorporates strategies from the recently updated Kitsap Transit planning document titled *Transit Development and Long Range (7-Year) Plan, 1997-2003*. The transit service recommendations include expanding the Harper Church park & ride lot, as well as eventually developing smaller remote lots away from the Southworth Ferry Terminal. Development of a park & ride lot is underway in the vicinity of Jackson Avenue near SR 160. The *Route Development Plan* also suggests developing a park & ride lot near the area of the interchange of SR 16 and SR 160. If a lot was constructed at this location, vehicle demand along Sedgwick Road could be reduced by capturing ferry-bound vehicles before they enter the SR 160 corridor and by providing transit service to the terminal. In the out years of the *Route Development Plan*, the addition of HOV treatments and signal preemption, HOV lanes and separate bus loading facilities at the Ferry Terminal is mentioned.

Washington State Ferry Service

- **Incorporate strategies outlined in the Washington State Ferry System Plan.**
The *SR 160 RDP* incorporates the recommendations contained in the Washington State Ferry Service System Plan. Recommendations include:
Foremost is splitting up the current Fauntleroy/Vashon/Southworth route into three separate routes. In its place, ferries would operate between Southworth and Vashon, Fauntleroy and Vashon, and eventually Seattle and Southworth. The goal in the area is to accommodate increases in ridership and divert traffic growth away from the Fauntleroy terminal, which is already operating at capacity and has little if any room for expansion. The draft plan also recommends passenger-only ferry service between Seattle and Southworth begin by the year 2000. Additionally, the System Plan assumes that after 2012, the passenger-only service would be replaced by car ferries.
- A Circulation Study of the Southworth Ferry Terminal will be conducted

Conclusions

Transportation planning is an ongoing process and must be flexible in order to incorporate unforeseen trends. One of the goals of this plan is to integrate the Department of Transportation's needs with the needs of local transit authorities, cities, counties, regions, citizen groups, and the traveling public. It is believed that this plan, along with a certain amount of flexibility, will provide a safe and well integrated transportation system for State Route 160. This plan will be updated and modified periodically as changes occur along the corridor, and as resources allow.

This long range plan will provide guidance for development of the Olympic Region's program of projects as well as guiding the Region's Development Services Team in defining developer impact mitigation measures. The Washington State Department of Transportation expresses its sincere appreciation to the individuals and local and regional agencies that took an active role in the development of this plan. WSDOT encourages these agencies to review and provide official comment on this consensus-based plan. Final approval of the *State Route 160 Route Development Plan* is issued by the WSDOT Olympic Region Administrator.

SR 160 Route Development Plan

Steering Committee Summary of Recommendations

State Route 160 Section Description	Steering Committee Recommendations for State Route 160	Steering Committee Recommendations for Public Transportation
SR 16 Interchange to Long Lake Road MP 0.00 to MP 2.55 Section Length = 2.55 miles Urban Land Use (SR 16 to Jackson) Rural Land Use (Jackson to end route) Typical Roadway 2-lane highway 4'-8' paved and gravel shoulders	<ul style="list-style-type: none"> Additional General Purpose Lanes This section of SR 160 should be developed as a four lane facility by constructing two additional General Purpose lanes. Access Management Per the Access Management Plan Class 3 designation, application of a restrictive median such as a raised traffic island is recommended. Full access opportunities should be provided (break in median) at Bravo, Geiger, Bethel, Converse, Jackson, and Phillips. Adopt Kitsap County Travel Demand Model for SR 160. Non-motorized Transportation Construct sidewalks and paved shoulders (with Transit pullouts) Highway Design Speed A Design Speed of 40 mph is recommended from SR 16 to Jackson and 45 mph from Jackson to Long Lake Road. 	<ul style="list-style-type: none"> Additional Park and Ride Lots Further study of a future Park and Ride lot in the 16 / SR 160 I/C. A Park and Ride lot is planned near the NE corner of SR 160 and Jackson Avenue Pedestrian & Bike Access Construct sidewalks and paved shoulders (with) Facility Design ADA Connection, waiting areas, turning movements, access, security, weather protection. Smaller Buses & Greater Frequency Transit Priority Treatments such as signal priority queue cuts Increased Frequencies All Day vs Peaks
Long Lake Road to Southworth Ferry Terminal MP 2.55 to MP 7.47 Section Length = 4.92 miles Rural Land Use Typical Roadway 2-lane highway 4' gravel shoulders	<ul style="list-style-type: none"> Access Management The Steering Committee agrees that the <i>Access Management Plan</i> Class 3 designation is appropriate for this section of SR 160. Spacing and frequency of future driveways are regulated by permit processes. Adopt Kitsap County Travel Demand Model for SR 160. Non-motorized Transportation Construct paved shoulders (with Transit pullouts) entire section, and sidewalks near Sedgwick Junior High School (MP 5.55) Highway Design Speed A Design Speed of 45 mph is recommended from Long Lake Road to Cottonwood Drive, and 40 mph to end of route. 	<ul style="list-style-type: none"> Expand Park and Ride Lots Expand capacity of Harper Church P & R Lot Southworth Ferry Terminal Circulation Study Transit Priority Treatments such as signal priority queue cuts Pedestrian & Bike Access Construct paved shoulders (with Transit pullouts) near Sedgwick Junior High School (MP 5.55) Facility Design ADA Connection, waiting areas, turning movements, access, security, weather protection Smaller Buses & Greater Frequency Priority Treatments Increased Frequencies All Day vs Peaks
Southworth Ferry Terminal vicinity and	<ul style="list-style-type: none"> A Circulation Study is recommended for the Southworth Ferry Terminal 	<ul style="list-style-type: none"> Pedestrian & Bike Access / Facility Design ADA Connection, waiting areas, turning movements, access, security, weather protection

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1.1 Highway Location and Route Overview

State Route 160, also known as Sedgwick Road, begins at an interchange with State Route 16 in Kitsap County. From its point of beginning at SR 16, the route travels in an easterly direction for 7.47 miles, to the Southworth Ferry Terminal. The route is presently a two-lane facility with left turn channelization provided at some of the major city and county intersecting streets. For much of its length the route provides only narrow gravel shoulders as it traverses several steep, high hills in its direct course to the Southworth Ferry Terminal. The posted speed limit on SR 160 varies from 35 to 45 mph.

From the Southworth Ferry Terminal, State Route 160 continues east over Puget Sound via Washington State Ferry routes providing connections to Vashon Island and Fauntleroy in South Seattle.

The Puget Sound Regional Council's *Metropolitan Transportation Plan*, dated May, 1995 depicts the significant highways in the region's current Metropolitan Transportation System (MTS). The MTS is comprised of regionally significant infrastructure and services which serve regional transportation functions. State Route 160 is identified in the MTS as a route that provides an important link of regional significance. In the four county area, all state routes have been designated in the MTS as regionally significant.

1.2 Character of Traffic and the Local Network of Roads

SR 160 provides a significant traffic corridor for various types of travel needs within the Kitsap and Olympic Peninsulas and the east Puget Sound region. The majority of travelers on SR 160 are commuters. Travel volumes on this highway are highest near the SR 16 and Port Orchard vicinity, indicating that many users of the route have origins and destinations near Port Orchard. Traffic volumes decrease along the highway as it continues east toward the Southworth Ferry Terminal. Some of the commuters along SR 160 travel on the Washington State Ferry routes to and from Vashon Island and Fauntleroy in West Seattle.

A traveler survey was performed as part of this *Route Development Plan* in order to gain input from the users of SR 160. The survey and summary of findings is presented in Appendix A. Respondents were asked about their frequency of travel along SR 160 (for the purposes of the survey, respondents were asked to count each one-way trip separately.) The majority of travelers (55%) make more than eight trips weekly along SR 160, followed by 14%

making trips three to five times per week and 11% make six to eight trips. Those traveling on SR 160 one to two times per week made up 10% of the respondents; another 10% report traveling SR 160 less than once per week.

When asked their typical modes of transportation along SR 160 an overwhelming proportion (99%) indicated that travel by car or pickup truck is their typical mode of travel.

Port Orchard is the typical destination of 41% of the respondents, followed by Bremerton (21%), Seattle (13%), and Tacoma (6%). Vashon Island, South King County, Silverdale and Gig Harbor were selected by 3% of respondents as their 'typical destination'. The communities of Southworth, Bangor, and Manchester were each chosen by 1% of respondents.

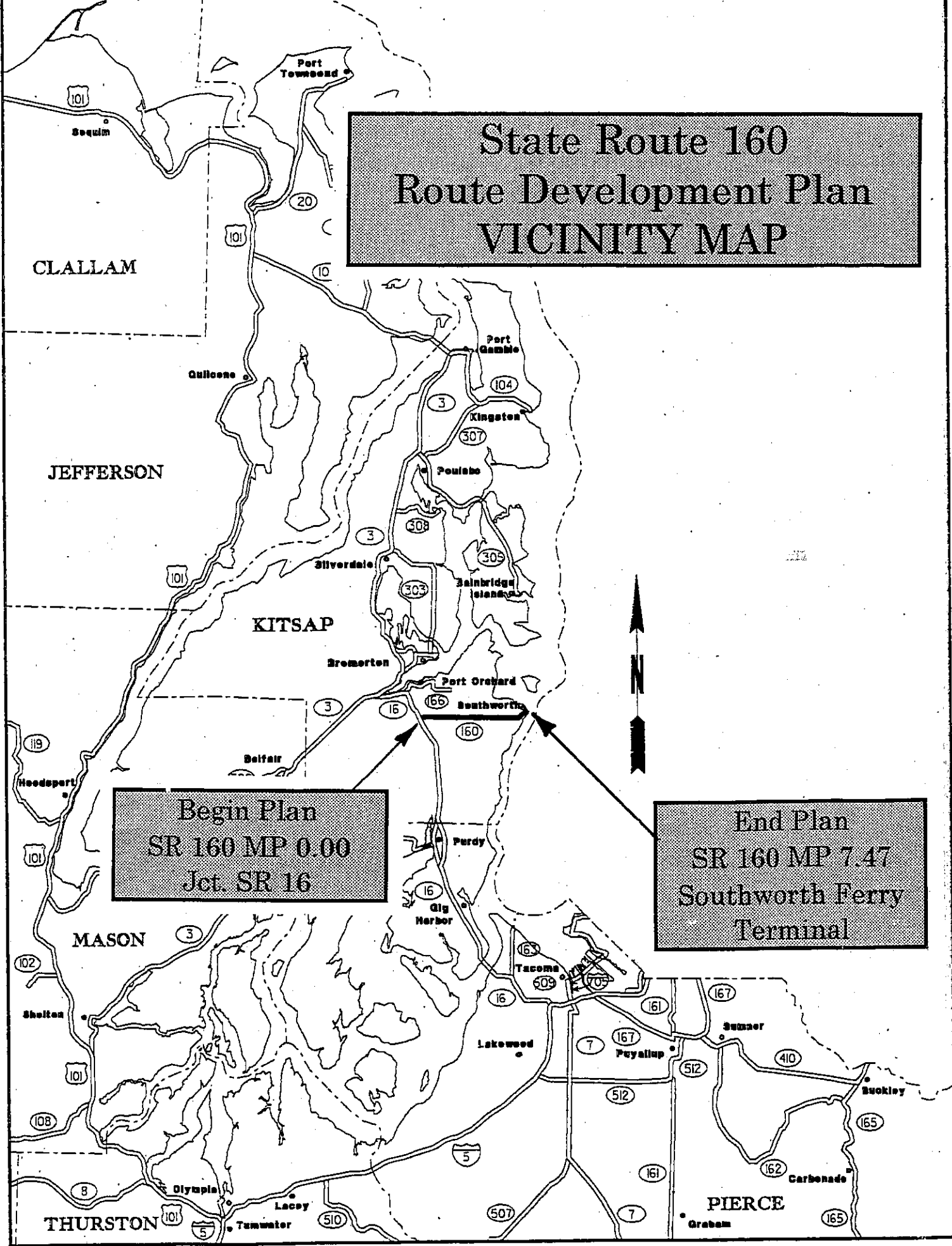
Traffic volumes in Kitsap County and along SR 160 are anticipated to continue to grow at a steady rate. More roadway improvements will be needed in the future to keep pace with this increased demand.

While State Route 160 provides an important link for east-west travelers in south Kitsap County, other local roadways in the vicinity of SR 160 also provide important east to west connections. State Route 166 lies several miles north of SR 160 in the City of Port Orchard. It provides another heavily traveled east-west link. Existing roadways near SR 160 and east of SR 16, such as Mullenix, Burley-Olalla, and Mile Hill Drive provide additional opportunities for east-west travel in south Kitsap County and Port Orchard. West of SR 16 lies Lake Flora Road, which provides an important connection between the SR 16/SR 160 Interchange and SR 3 near the Bremerton National Airport.

Many travelers in south Kitsap County, in the vicinity of SR 160, travel in a north-south direction. To the west of SR 160 lies SR 16. This route serves local and regional traffic traveling in a north-south pattern to SR 3 in Gorst and points north such as Bremerton and north Kitsap County via SR 3. South of SR 160, SR 16 provides a connection to Gig Harbor, Tacoma and Interstate 5 in Pierce County.

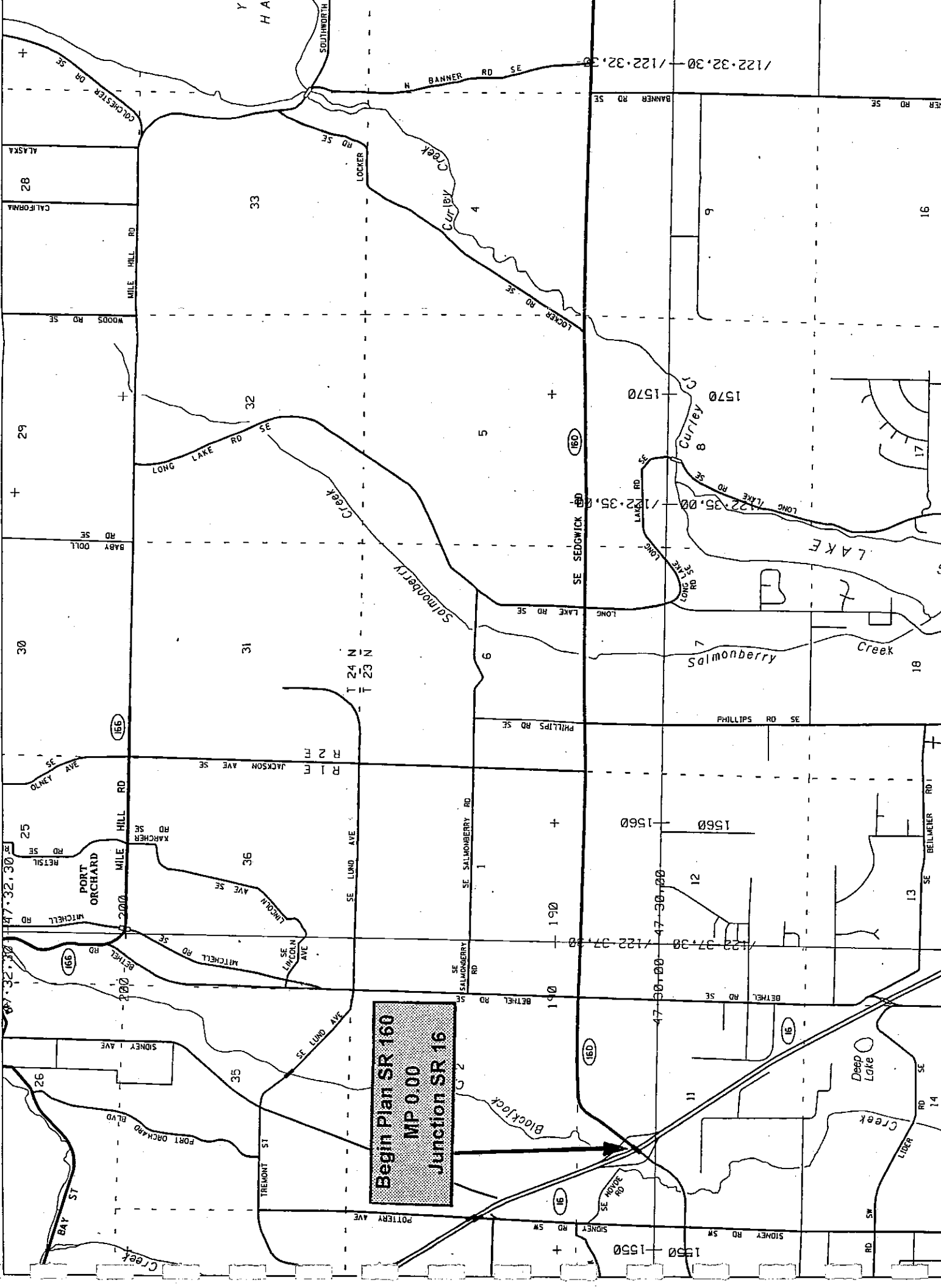
At a local level in south Kitsap County, travelers use existing facilities such as Bethel Avenue, Jackson Avenue, Phillips Road, Long Lake Road, and Banner Road. All of these local roadways connect to or cross SR 160. These local roadway connections near SR 160, and improvements to existing local arterials, are vital to provide travel choices within south Kitsap County, and to offset the high demand for increased capacity on SR 160.

State Route 160
Route Development Plan
VICINITY MAP



Begin Plan
SR 160 MP 0.00
Jct. SR 16

End Plan
SR 160 MP 7.47
Southworth Ferry
Terminal



Begin Plan SR 160
MP 0.00
Junction SR 16

1.3 Route Classifications

The following table summarizes several of the various classification systems as they apply to SR 160.

Table 1.3 State Route 160 Classifications

Classification System	Location	Classification
Federal Functional Class	SR 16 to Long Lake Road (MP 0.00 to MP 2.55)	Urban Minor Arterial (Bremerton-Port Orchard Urbanized Area)
	Long Lake Road to Southworth Ferry Terminal (MP 2.55 to MP 7.47)	Rural Minor Arterial
State Functional Class	Same as Federal Functional Class	
National Highway System Status	Currently not included (See Section 1.4)	
Freight and Goods Transportation System Status	Entire Route (MP 0.00 to MP 7.47)	"T-3" Classification. (indicates 300,000 to 4,000,000 freight tons are transported over this route annually)
Roadside Classification Plan (1996 document available)	Entire Route (MP 0.00 to MP 7.47)	Rural (concerns roadside vegetation and management)
Access Management Plan Classifications	See Section 1.5 & Appendix E	

1.4 National Highway System

Kitsap County has initiated a request that SR 160 be included in the National Highway System. The City of Port Orchard expressed that they were not aware of this request and may not agree that SR 160 should become an NHS route. The SR 160 *Route Development Plan* Steering Committee determined that any decision to incorporate SR 160 into the NHS would be based on the outcome of Kitsap County's application.

1.5 Access Management Plan Classifications

1.5.1 Background on the Access Management Plan

Access management provides techniques for protecting the carrying capacity of highways and for improving highway safety, while balancing the needs of local

access to and from the highway. Access Management techniques attempt to minimize disruptions to through traffic by eliminating and regulating driveways, managing the roadway median, spacing traffic signals and managing turning traffic, as well as other measures.

The Washington State Legislature passed a law called "Highway Access Management", RCW Chapter 47.50, in 1991. This law required that WSDOT develop two sets of rules. The first set of rules created an orderly application process for gaining access from private property to state highways and established access permit fees. The second set of rules established five classifications for non-limited access highways. Access is controlled in two ways: through the purchase of access rights or by managing it. A freeway is an example of a fully limited-access highway. Some highways are partially limited with access rights having been purchased for parts of the roadway. Managing access is a way of limiting access in a more flexible way that is also less costly to taxpayers.

The five access management classifications that have been assigned to state highways reflect different highway environments. Factors that were considered in developing the classifications are: traffic volume, speed limit, adjacent land use, functional classification, existing access density and safety.

1.5.2 Typical Characteristics of Access Management Plan Classifications

Class 1 Facility

- High speed and/or high traffic volumes, long trips
- Restrictive median required on multi-lane facilities
- Planned intersection spacing = 1 mile
- Minimum private connection spacing = 1320 feet
- Private direct access to the state highway shall not be allowed except when the property has no other reasonable access to the general street system.

Class 2 Facility

- Medium to high speeds, medium to high traffic volumes, medium to long trips
- Restrictive median required on multi-lane facilities
- Planned intersection spacing = 1/2 mile
- Minimum private connection spacing = 660 feet
- Private direct access to the state highway shall not be allowed except when the property has no other reasonable access to the general street system.

Class 3 Facility

- Moderate speeds, moderate traffic volumes, short trips
- Balance between land access and mobility

- Median constructed of curbed asphalt or landscaped traffic islands. A center Two-way Left-turn Lane may be used as conditions warrant.
- Planned intersection spacing = 1/2 mile
- Minimum private connection spacing = 330 feet

Class 4 Facility

- Moderate speeds, moderate traffic volumes, short trips
- Balance between land access and mobility
- Two way left turn lane is typically used
- Planned intersection spacing = 1/2 mile
- Minimum private connection spacing = 250 feet

Class 5 Facility

- Low to moderate speeds, moderate to high traffic volumes, short trips
- Highest service to land access
- Planned intersection spacing = 1/4 mile
- Minimum private connection spacing = 125 feet

1.5.3 Access Management on SR 160

Table 1.5 summarizes the *Access Management Plan* classifications for State Route 160. No changes to this classification were recommended by the Steering Committee.

Table 1.5

SR 160 WSDOT Access Management Plan

Section Description	Length (miles)	Access Classification	Speed Limit	Land Use
SR 16 Interchange Vicinity (MP 0.00 to MP 0.15)	0.15	Full Control		N/A
SR 16 I/C Vic. to Port Orchard East City Limits (MP 0.15 to MP 0.33)	0.18	Class 3	40	commercial
Port Orchard East City Limits to after Jackson Avenue (MP 0.33 to MP 1.85)	1.52	Class 3	Varies 40-45	comm./residential
After Jackson Avenue to Southworth Ferry Terminal (MP 1.85 to MP 7.47)	5.62	Class 3	Varies 35-45	Rural/ Residential

Source: WSDOT Access Management Plan.

For additional information regarding the *WSDOT Access Management Plan*, consult Chapters 468-51 and 468-52 of the Washington Administrative Code (WAC) and Chapter 47.50 of the Revised Code of Washington(RCW). Appendix E contains excerpts from WAC 468-52.

1.6 Existing Right-of-Way

State Route 160 operates within a 60 foot wide right-of-way corridor. This present right-of-way corridor does not provide enough space for constructing some of the recommended improvements, such as highway widening presented in Chapter 3. There are however some short sections along the route where the right-of-way corridor is greater than 60 feet. Designers should consult the available right-of-way plan sheets, and "as-built" plan sheets provided by Kitsap County for further details.

1.7 Existing Surface Geometrics

At present, State Route 160 typically provides one 12 foot wide general purpose travel lane in each direction, with some left-turn channelization provided at city/county street intersections. Generalized information regarding the configuration of existing lanes and shoulders is provided in the following table. This information was taken from the *WSDOT State Highway Log Planning Report, 1996* and is subject to change. For further details, refer to the most current *WSDOT State Highway Log* and other resources, such as "as-built" plan sheets.

Table 1.7 SR 160 Existing Surface Geometrics

Section Description	Traffic Lanes	Shoulders & Sidewalks
SR 16 I/C through Bethel Road MP 0.00 to MP 0.85	<ul style="list-style-type: none"> One through travel lane each direction Channelized Intersections: WB SR 160 Lt Turn to Bravo Terrace SR 160 at Bethel Road, Lt. Turn 	4' to 8' paved shoulders
After Bethel through Jackson Ave MP 0.85 to MP 1.85	<ul style="list-style-type: none"> One through travel lane each direction Channelized Intersections: At Jackson Avenue (MP 1.82), EB Lt and Rt Turn Chan, WB Lt Turn Channelization 	Predominantly 4' gravel/grass shoulders
After Jackson Avenue through Long Lake Road MP 1.85 to MP 2.55	<ul style="list-style-type: none"> One through travel lane each direction Channelized Intersections: At Long Lake Road (MP 2.54) EB Lt Turn Channelization 	Predominantly 4' gravel/grass shoulders. Except EB Paved 8' shld approaching Long Lake Rd
After Long Lake Road to Ferry Terminal MP 2.55 to MP 7.3	<ul style="list-style-type: none"> One through travel lane each direction Channelized Intersections: Lake View Drive (MP 5.25 to MP 2.64) Center Two-way Lt Turn Lane Peppermil Place (MP 2.84) EB Lt Turn Lane Sedgwick Junior High School (MP 5.55) EB Lt Turn Channelization 	Predominantly 4' gravel/grass shoulders. Except short paved areas, such as fronting Harper Church and Sedgwick JH School

Source: WSDOT State Highway Log, 1996

1.8 Existing Intersections and Traffic Signals

The following table provides information relating to existing public road intersections and traffic signals along SR 160. Recommendations regarding future traffic signal locations can be found in Section 3.4.

Table 1.8
SR 160 Existing Public Road Intersections and Traffic Signal Inventory

Intersecting Street Name	Left Right Both	State Route Mile Post	Distance to next Intersection (Miles)	Speed Limit (MPH)	Signalization	
					Existing Yes/No	Distance to next Signal
SR 16 Westbound On/Off Ramps	B	0.09	0.07	40	Yes	0.73 mi.
Bravo Terrace	R	0.16	0.28	40	No	
Geiger Rd SE	B	0.44	0.25	40	No	
Ramsey Rd	L	0.69	0.13	40	No	
Bethel Rd SE	B	0.82	0.33	40	Yes	1.00 mi.
Estonia Ct SE	R	1.15	0.17	40	No	
Converse Ave SE	B	1.32	0.09	40	No	
Sherlyn Ave SE	R	1.41	0.06	40	No	
Dana Dr SE	R	1.47	0.10	40	No	
Brasch Rd SE	R	1.57	0.25	45	No	
Jackson Ave SE	B	1.82	0.22	45	Yes	
Phillips Rd SE	B	2.04	0.50	45	No	
Long Lake Rd SE	B	2.54	0.09	45	Yes Amber Flashing	
Lakeview Dr/Pl SE	B	2.63	0.21	45	No	
Peppermill Pl SE	L	2.84	0.27	45	No	
Bodle Rd SE	R	3.11	0.46	45	No	
Mayvolt Rd SE (left) Lake Valley Rd SE (right)	B	3.57	0.21	45	No	
Locker Rd SE	L	3.78	0.81	45	No	

Table 1.8 (con't)

SR 160 Existing Public Road Intersections and Traffic Signal Inventory

Intersecting Street Name	Left Right Both	State Route Mile Post	Distance to next Intersection (Miles)	Speed Limit (MPH)	Signalization	
					Existing Yes/No	Distance to next Signal
Anderbar Rd SE	R	4.59	0.25	45	No	
Banner Rd SE	R	4.84	0.12	45	No	
Banner Rd SE	L	4.96	0.13	45	No	
Arvick Rd SE	L	5.09	0.09	45	No	
Westway Dr SE	L	5.18	0.12	45	No	
Eastway Dr SE	L	5.30	0.25	45	No	
Sedgwick Jr High School	L	5.55	0.03	45	No	
Peterson Rd SE	R	5.58	0.03	45	No	
Sedgwick Cemetery	R	5.61	0.23	45	No	
Harper Hill Rd SE	L	5.84	0.23	45	No	
Cottonwood Dr SE	L	6.07	0.23	35	No	
Wilson Creek Road SE	B	6.34	0.15	35	No	
Siana Place SE	L	6.49	0.81	35	No	
Old SR 160	L	7.30	0.02	40	Stop Sign controls NB & EB traffic	
Rocky Road	L	7.32	0.02	40	No	
Sebring Dr	L	7.34	-----	40	No	
End SR 160 Land Highway at Southworth Ferry Terminal, MP 7.47 = Begin SR 160 via Washington State Ferry Routes						

Source: WSDOT State Highway Log, Planning Report 1996

1.9 Bridge and Structure Inventory

Information regarding existing bridges along SR 160 was provided by the WSDOT Bridge and Structures Office.

Table 1.9
SR 160 Bridge and Structure Inventory

Bridge Number Bridge Name Mile Post	Span Type	Length (feet)	Curb to Curb Width (feet)	Year Built (rebuilt)
160 / 5 SR 16 Overcrossing MP 0.01	PCB	223	55	not available
160 / 10 Curley Creek MP 3.82	CTB	21	29.1	not available
160 / 32 Southworth Ferry Terminal	SG TTT	511	19.8	1957 (1983)

Source: Received from WSDOT Bridge and Structures Office, Bridge Planning and Technology Section, 5/24/95.

1.10 Existing Horizontal and Vertical Alignment

Due to the fact that SR 160 is a relatively new state highway, horizontal and vertical alignment data was not available in the WSDOT TRIPS System at the time of this analysis. Information was provided to WSDOT by Kitsap County, including "as-built" highway plans and profiles. Using this and other information WSDOT evaluated the alignment of SR 160. The vertical alignment grades range from flat to 16.2%. There are two major hills and several less severe hills along Sedgwick Road. The two steepest hills are located near Long Lake Road (approximately 11% grade) and between Locker and Banner Roads (16.2% grade).

The Steering Committee discussed how to improve the current alignment of SR 160. It would be very costly to reduce the grades on the two steep hill sections. The Steering Committee determined that WSDOT staff should evaluate the alignment to identify the existing design speed, and to recommend a design speed for the route segments. Design speed recommendations, in conjunction with the WSDOT Safety Program, will allow WSDOT design staff to realize realistic highway design standards when designing future improvement projects. The resulting design speed recommendations are presented in Chapter 3 of this report.

2.1 Land Use and Zoning

Land use zoning regulates the locations of land uses. It is a means by local jurisdictions of assuring that land uses are compatible and provides for control of densities in each zoning category, with the purpose of providing adequate facilities for such categories. Zoning ordinances are established to prescribe setbacks and minimum lot sizes and provide techniques to preserve and protect environmentally sensitive areas. The land use plan is a basic part of the comprehensive plan which is an official statement of the county or city policy establishing the direction it will follow as it develops and changes.

SR 160 travels through land that is designated as both urban and rural areas. Kitsap County and the City of Port Orchard have further established land use zoning within these areas for such uses as Commercial and Residential.

When developing the future roadway vision for SR 160, the *Route Development Plan* Steering Committee recognized that perhaps the most important element of all the various land use classifications near SR 160 is that it travels through both *urban* and *rural* areas, and that through these areas the highway should be developed differently.

2.1.1 Urban Land Use Area

SR 160 travels through an area designated by Kitsap County as an urban area, from its beginning at SR 16 to the intersection with Jackson Avenue at milepost 1.82. The Steering Committee members concurred that within this urban area of SR 160, the route should be developed as a multilane facility (see Chapter 3). Presently the highway provides one lane of travel in each direction, with channelization and traffic signals at some intersections. Future traffic volumes will warrant the need for additional travel lanes in this area. It should be noted that in addition to this urban segment, WSDOT has previously identified SR 160 as an urban highway further east to Long Lake Road. This discrepancy was discussed by the Steering Committee and it was decided that WSDOT should adopt the County's urban and rural boundaries along the route.

2.1.2 Rural Land Use Area

The majority of SR 160 travels through an area designated by Kitsap County as rural. Specifically, this highway segment begins at the intersection with Jackson Avenue and continues to the Southworth Ferry Terminal. The *Kitsap County Comprehensive Plan, December 1996* cites many goals associated with the rural land use designation. For example, Goal #1 states

“To retain the rural character of the county outside of urban areas”,

and Goal #2 states

“To establish development standards which help preserve the rural character of the county”.

The Steering Committee agreed that this 5.65 mile section of rural SR 160 should be developed in such a way as to minimize impacts to the rural character. However, in addition to the rural land use designation along much of SR 160, the Steering Committee also recognized that this highway provides many travelers with a regional transportation opportunity, given the connection it provides to the Southworth Ferry Terminal.

Existing and future traffic volumes, and resulting levels of service are presented in Section 2.3 of this report. Based on this information, the Steering Committee determined that the travel demand on SR 160 today, and in the future, will cause an unsatisfactory level of service if no capacity improvements are provided.

2.1.3 Land Use Maps

The land use zonings for areas along SR 160 are shown on the following land use maps, which were provided by Steering Committee members from the City of Port Orchard and Kitsap County. These maps represent a “snap shot” of information used by the Steering Committee during the preparation of this report. The maps are presented here for general information only and are subject to change. As with many planning documents, it can be expected that these maps will eventually be updated by the respective agencies. It is recommended that the reader consult with the proper agency when requesting current information on land use.

City Limits

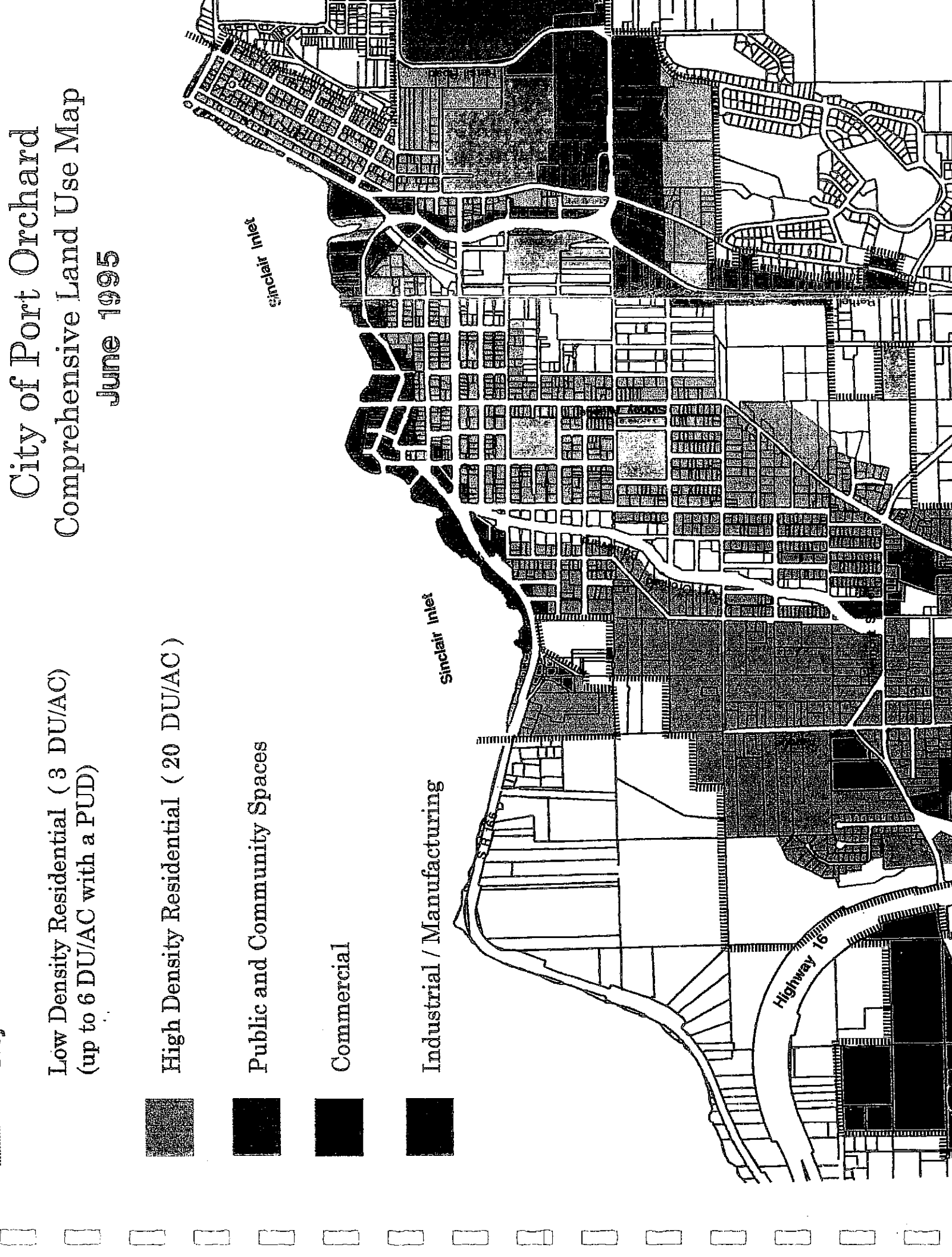
Low Density Residential (3 DU/AC)
(up to 6 DU/AC with a PUD)

High Density Residential (20 DU/AC)

Public and Community Spaces

Commercial

Industrial / Manufacturing

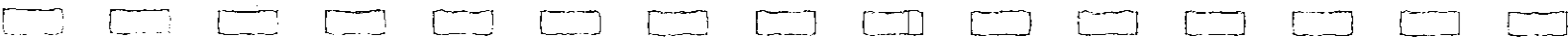
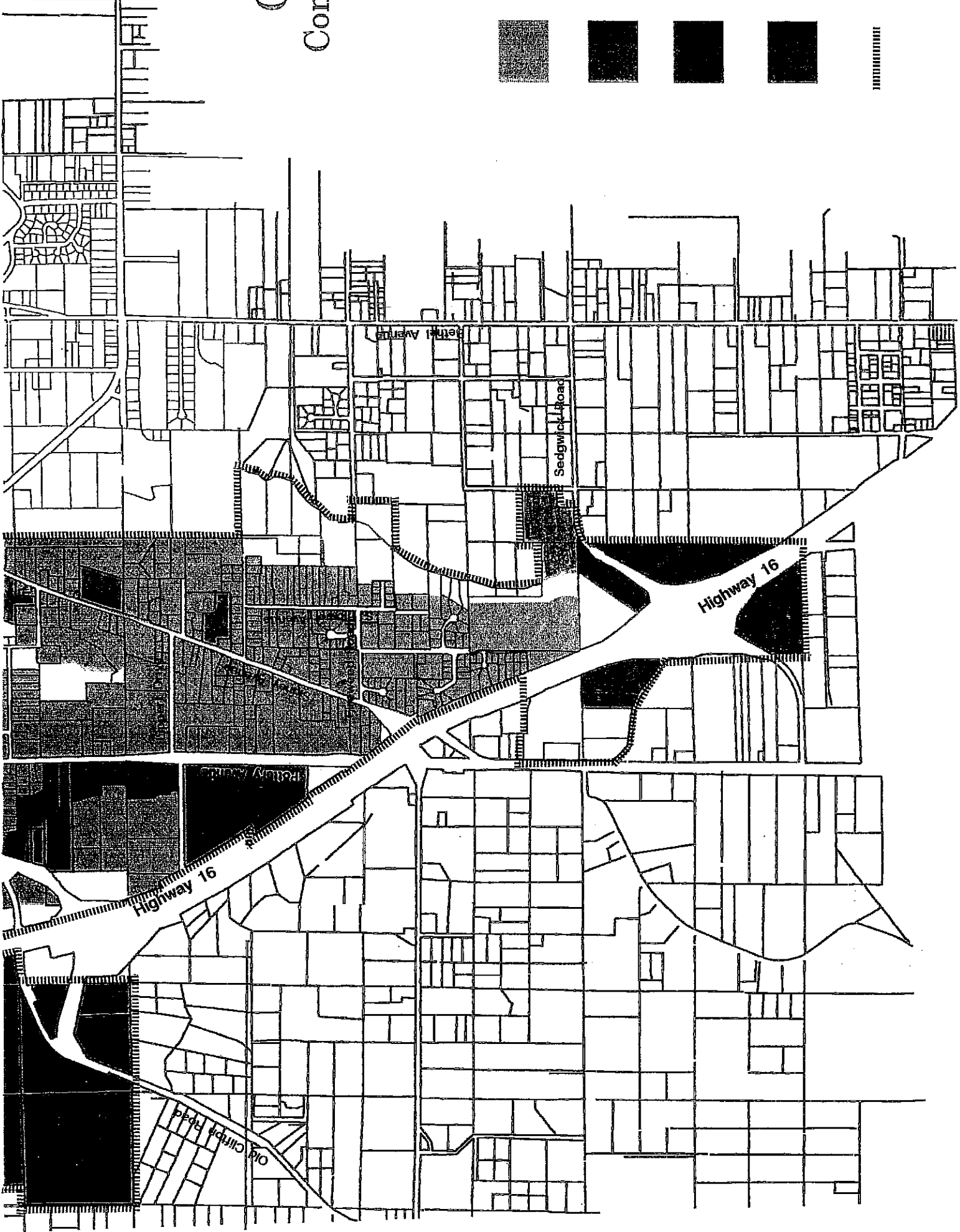


City of Port Orchard

Comprehensive Land Use Map

June 1995

Cor



P COUNTY Washington

ENSIVE PLAN MAP
December 23, 1996

Woods
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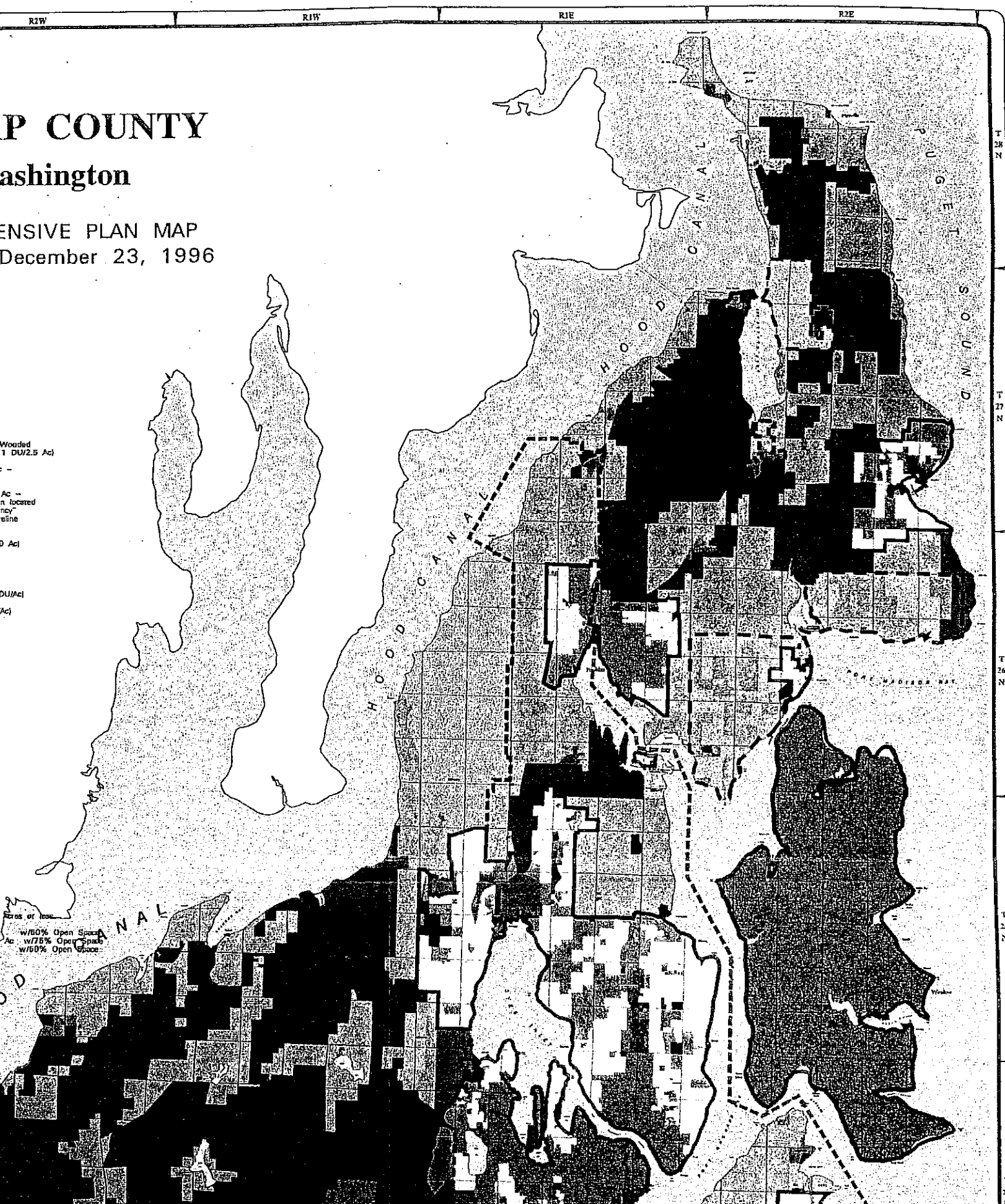
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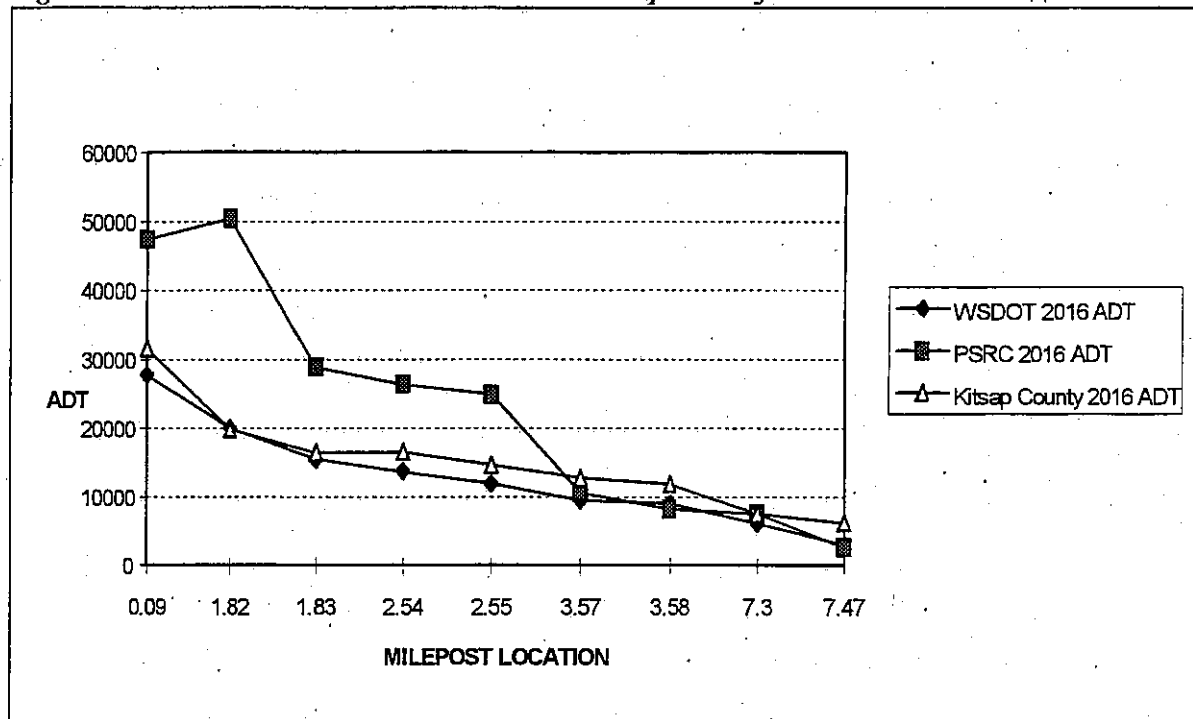


2.2 Traffic Data Collection and Analysis

2.2.1 Travel Demand Models and Traffic Data Sources

Travel forecasting data used for this analysis was obtained from Kitsap County, Puget Sound Regional Council (PSRC), Washington State Ferries (WSF), and WSDOT. After review and comparison of these data, the Steering Committee determined that Kitsap County's travel model was the most appropriate to apply in this RDP process. They also agreed that WSF modeling should be used for Ferry Terminal and Ferry Travel analysis. Figure 2.2 shows the variation between data sources regarding predicted future average daily traffic volumes along SR 160.

Figure 2.2: SR 160 Travel Demand Data Comparison for Year 2016



The PSRC travel demand model assumes higher demand on SR 160 than does Kitsap County's model or the WSDOT data. The PSRC model assumes that capacity will be added on SR 16 from I-5 in Tacoma to SR 3 in Gorst, including added bridge capacity at the Tacoma Narrows crossing. With these assumptions, the model reflects the attraction of new development and accelerated traffic demand on other roadway networks including SR 160 and local arterials in Kitsap County. However, the PSRC model assumptions of capacity improvements at the Tacoma Narrows are subject to an advisory vote for tolls (in conjunction with the State's public/private partnership initiative) in November of 1998. Therefore, the Steering Committee members agreed that

the PSRC model should not be applied to this RDP, unless it is updated after 1998.

2.2.2 Analysis Methodology

The Kitsap County travel demand model growth rates were applied to available 1994/95 traffic data to obtain representative volumes for the planning horizon year 2016. Both the 1994/95 and 2016 traffic volumes were analyzed using the *Highway Capacity Manual* software to determine the traffic operating levels of service for highway segments along SR 160. The resulting levels of service and volume/capacity ratio information is presented in Table 2.3.

Input Variables

In the analysis of highway segments, the traffic volume used was the Design Hour Volume (DHV) which was calculated by multiplying the Average Daily Traffic (ADT) by the percentage of ADT occurring in the peak hour (K). The K values were obtained from the *WSDOT State Highway System Plan* data which utilizes the data furnished by the WSDOT Transportation Data Office in Olympia. The values for the percentage of peak hour traffic in the heaviest direction of flow (D) and the truck percentage (T) were also obtained from the WSDOT Transportation Data Office.

Existing year (1997) traffic volume counts were not available for SR 160 during this analysis. However, recent traffic data from 1994 and 1995 was available and it was used in the highway level of service analyses. Based on WSDOT and Kitsap County traffic records, the 1994/95 average daily traffic (ADT) ranged from a high of 18,560 between SR 16 and Bethel Road, to a low of 2,420 at the Southworth Ferry Terminal. Truck traffic percentage is estimated at 3%. The K values range from 9% (SR 16 to Mayvolt Road) to 10% (Mayvolt Road to Ferry Terminal). The D values used in this analysis are 63% (SR 16 to Mayvolt Road) and 71% (Mayvolt Road to Ferry Terminal). The factors K, D, and T were assumed to remain constant to year 2016.

The annual traffic growth rates, generated by the Kitsap County travel demand model, ranged from 1.5% to 4.4%. These growth rates were applied to the 1994/95 traffic volumes (by annual compounding) in order to obtain projected traffic volumes for the planning horizon year 2016.

Travel demand models relate to land use and are an evolving source of information that alter with time and development conditions. Growth rates from the Kitsap County travel model were used to represent a "snapshot in time" taken during the *Route Development Plan* preparation period.

2.3 Present and Future Levels of Service

The preceding section described the methodology behind the highway level of service evaluation of SR 160. This section presents the results of the highway segment analyses performed.

Table 2.3 summarizes the present and future year expected operating levels of service along SR 160, both with and without recommended capacity improvements. It is evident from the table that highway capacity improvements are necessary in order for SR 160 to operate at an acceptable level of service both today and in the future.

2.3.1 SR 16 to Long Lake Road

The section of SR 160 running between SR 16 and Long Lake Road presently operates at a fairly high level of congestion during peak commute periods (based on analysis of 1994/95 traffic count data). Table 2.3 relates this condition in terms of volume-to-capacity (V/C) ratios. The V/C ratios for this segment, representing the existing levels of congestion during the peak operating period, range from 0.88 to 0.44. A V/C ratio of 0.88 is commonly identified as a Level of Service (LOS) E.

Since the LOS actually relates to traffic volumes and highway conditions from 1994/95, it is reasonable to assume that this condition has worsened since that time and will continue to worsen if no highway capacity improvements are provided to SR 160. Additionally, this LOS E represents results of a segment analysis, not a signalized intersection delay analysis.

There are currently three signalized intersections on SR 160 between SR 16 and Long Lake Road. These signalized intersections at SR 16, Bethel Road, and Jackson Avenue actually influence and control the level of service of this highway segment. The existing and future LOS of the signalized and unsignalized intersections were not analyzed, however it is assumed that they are already operating at or near capacity.

2.3.2 Long Lake Road to Southworth Ferry Terminal

In 1994/95 SR 160 operated in a peak hour volume-to-capacity ratio of 0.33 to 0.36, between Long Lake and Banner Roads. In the several years that have passed, traffic volumes have steadily increased. In terms of Level of Service, this section of SR 160 likely operates at approximately a LOS C or D today (year 1998). The section of SR 160 from Banner to the Southworth Ferry Terminal operates at or around a LOS C today. By the year 2016, these conditions are expected to drop to LOS E and D respectively for these segments.

Table 2.3

SR 160 Highway Segment Volume-to-Capacity Ratios and Level of Service

Segment Description	Existing Conditions			Future Conditions			
	1994/ 1995 ADT	1994/ 1995 DHV	1994/1995 Segment v/c Ratio & Approx. LOS	2016 ADT	2016 DHV	2016 Segment v/c Ratio & Approx. LOS Without Improvements	2016 Segment v/c Ratio & Approx. LOS With Improvements
SR 16 to Bethel Rd MP 0.00 to MP 0.82	18560	1670	v/c = 0.88 LOS E	31620	2846	v/c = 1.40 LOS F	v/c = 0.55 LOS C
Bethel Rd to Jackson Ave MP 0.82 to MP 1.82	14370	1293	v/c = 0.63 LOS E	19900	1791	v/c = 0.88 LOS E	v/c = 0.38 LOS B
Jackson Ave to Long Lake Rd MP 1.82 to MP 2.54	10020	901	v/c = 0.44 LOS D	16560	1490	v/c = 0.71 LOS E	v/c = 0.29 LOS B
Long Lake Rd to Mayvolt Rd MP 2.54 to MP 3.57	6900	621	v/c = 0.36 LOS D	12720	1145	v/c = 0.55 LOS E	No Capacity Improvements Recommended
Mayvolt to Banner MP 3.57 to MP 4.96	5940	594	v/c = 0.33 LOS D	11830	1183	v/c = 0.65 LOS E	No Capacity Improvements Recommended
Banner to Southworth Drive MP 4.96 to MP 7.34	3930	393	v/c = 0.23 LOS C	7520	753	v/c = 0.41 LOS D	No Capacity Improvements Recommended
At Southworth Ferry Landing	2420	242	v/c = 0.14 LOS B	6190	619	v/c = 0.34 LOS D	No Capacity Improvements Recommended

Sources: WSDOT and Kitsap County traffic records; Kitsap County Travel Demand Model Growth Rates; *Highway Capacity Manual* Software

Notes and assumptions:

- ADT = Average Daily Traffic volume
- DHV = Design Hourly Volumes, used to measure level of service and volume to capacity ratios.
- LOS = Level of Service, as a nationally recognized grade value from A to F, based on *Highway Capacity Manual* methodology
- v/c = Volume to Capacity Ratio
- Future conditions (for year 2016) of v/c ratios and corresponding LOS's are shown for "without improvements" (based on a do nothing scenario) and "with improvements" (analyzed as a four-lane highway). See Chapter 3 for a complete description of steering committee recommendations.

This chapter presents a listing of recommended improvements to the SR 160 corridor. Highway capacity and design speed recommendations are presented, as well as visions for improved Transit, Ferry, and non-motorized facilities and services. The recommendations are intended to serve as a planning tool to be used by the WSDOT and local and regional agencies. The recommendations reflect stakeholder agency policies, public involvement, and sound engineering judgments. Future decisions, such as encountered during the detailed design/environmental phases of improvement projects, should not be based solely on the planning-level recommendations in this report. However, this Plan and the recommendations contained herein are considered practical strategies to improve SR 160.

A public opinion survey of travelers who use the SR 160 corridor was conducted (see Appendix A, Agency and Public Involvement). This process, as well as public open houses and Steering Committee meetings, provided valuable input to the decision making that went into the recommendations listed in this *Route Development Plan*.

- **Section 3.1 provides the Steering Committee's recommendations regarding improvements to State Route 160**
 - Section 3.1.1 SR 16 to Long Lake Road
 - Section 3.1.2 Long Lake Road to the Southworth Ferry Terminal
 - Section 3.1.3 Traffic Signal Recommendations
 - Section 3.1.4 Highway Safety and Design Speed
 - Section 3.1.5 Non-motorized Travel Facilities
- **Washington State Ferry Service plans are presented in Section 3.2**
- **Section 3.3 summarizes Public Transit Service and Park & Ride lots**
WSDOT design staff should consult this section of the *RDP* in order to coordinate Transit needs with other future improvement projects.
- **Section 3.4 presents a brief discussion on local roadway improvements identified in agency plans**
- **Section 3.5 summarizes findings from a separate, recent planning effort on freight mobility travel in Kitsap County**
- **Section 3.6 provides a discussion on the WSDOT Program Structure, including the *State Highway System Plan* and how projects (like the improvement strategies outlined in this Chapter) compete for funding**

3.1 State Route 160 Highway Improvement Recommendations

This section of the *SR 160 Route Development Plan* presents Steering Committee recommendations for maintaining and improving the carrying capacity of the highway, and discusses other improvement programs, such as highway safety. These improvement recommendations vary for individual sections of the route.

A Word on WSDOT Design Standards

As these recommendations evolve into future improvement projects, more information will be necessary to complete the design work. For instance, the Steering Committee assumes that the improvements will be constructed to WSDOT Design Standards. Deviations to WSDOT standards will need to be justified during project development.

3.1.1 State Route 16 to Long Lake Road

Highway Capacity and Access Management

Create a Four Lane Facility with a Raised Median

To increase the carrying capacity of this congested segment of State Route 160, the Steering Committee recommends the construction to provide two general purpose lanes in each direction, with a restrictive median separating opposing directions of travel.

The intent of the restrictive median, such as a raised traffic island, is to minimize vehicle turning conflicts. The City of Port Orchard expressed that this median should be designed to include landscaping in commercial areas. WSDOT staff shared with the Steering Committee that landscaped medians will need to be maintained by the City, as WSDOT maintenance forces cannot provide this additional responsibility.

Recommended openings in the median would allow full or partial left turn opportunities to remain at Bravo Terrace, Converse Avenue, the two signalized intersections of Bethel Road and Jackson Avenue, and at Phillips Road. Geiger Road was also discussed by the Steering Committee as an intersection that should be considered to remain open to full access. If all of the above mentioned intersections are allowed full access when the highway is multi-laned, it is likely that the intention of the *Access Management Plan* Class 3 designation will not be fully achieved, since openings in the median would be closer than one half mile in some cases. The City of Port Orchard will need to demonstrate practical traffic mitigation measures at such time as developments occur. Beyond Phillips Road, the raised median should continue,

uninterrupted, to its end at the intersection with Long Lake Road. At this point the recommended additional through travel lanes would terminate.

Non-Motorized Transportation

Construct Paved Shoulders and / or Sidewalks

The steering committee agrees that this section should be improved for people who choose to travel as pedestrians or bicyclists. Construction of paved shoulders and / or sidewalks with bike shoulder lanes is recommended along this section of SR 160. Sidewalks may not be as necessary east of Jackson Avenue. **Section 3.1.5 provides further information regarding non-motorized facilities.**

Highway Safety and Recommended Design Speed

Future highway safety improvement projects will be designed according to WSDOT design standards, which are based in part on design speeds. As part of this route development planning effort, WSDOT staff analyzed SR 160 in order to determine a recommended design speed.

For this section of SR 160 a design speed of 40 miles per hour is recommended from SR 16 to Jackson Avenue, and a design speed of 45 miles per hour is recommended between Jackson Avenue and Long Lake Road.

This design speed recommendation, in conjunction with the WSDOT Safety Program, will allow WSDOT design staff to realize practical highway design standards when designing future improvement projects.

Highway Right-of-Way

Presently, SR 160 operates within a sixty foot-wide right-of-way corridor. The recommendations for this section of SR 160 will very likely require additional right-of-way. The degree of these impacts will be realized during project development phases, and may vary based on topography and other factors.

Future developments along SR160 should be designed with adequate set backs from SR 160, considering future highway right-of-way needs.

Justifications for Recommendations

Mobility and Access Management

The current peak period congestion on this section of SR 160 is at or below the Kitsap County LOS E standard for urban area highways and LOS D for rural highways. With no capacity improvements, future congestion will deteriorate to LOS F, particularly due to signalized intersections being a controlling factor.

The recommended mobility investment is expected to improve the operating level of service of SR 160 to a LOS C or D through the planning horizon of year 2016 (based on link analysis). Since the LOS is actually controlled by delay at the signalized intersections such as Bethel Road and Jackson Avenue, this improvement is anticipated to result in the LOS D/E range by 2016.

Since access to adjacent land use and approach roads affects the highway's ability to move people and goods, sound access management practice should also be incorporated in order to maximize the public's investment.

The steering committee concurred that the present *Access Management Plan* Class 3 designation is sensible for this section of SR 160. As presented in Chapter 2, a typical roadway section for a multi-lane Class 3 facility utilizes a raised traffic island as a restrictive median design. The steering committee concurred that this section of SR 160, when widened, should receive a raised median to separate directions of travel. The intent of the raised median application would be to confine left turning access to major public road intersections. This will reduce the number of possible turning vehicle conflicts and increase overall capacity, while balancing the needs to provide left turn access to adjacent land.

Public Opinion Survey Shows Strong Support

Self-administered Transportation Surveys were sent to the residences of actual users of SR 160 in June 1997. Users were identified by matching license plate numbers of cars observed traveling the route in March 1997 with the names and addresses of registered vehicle owners. The Transportation Survey was sent to 2,487 people identified as users of SR 160. Three hundred fifty-one (14.1 %) of the sampled population responded to this survey.

Respondents familiar with SR 160 between SR 16 and Phillips Road were asked about their level of support for construction of two lanes in each direction separated by a landscaped median, with openings at major intersections for turns. Support for this was fairly strong, with 51% indicating that they were "very likely to support" and 27% indicating that they were "somewhat likely to support". Support was strongest among those people who make more than eight trips along SR 160 each week, with 58% indicating that they were "very likely to support" the additional lane recommendation.

The survey asked a similar question regarding the section of SR 160 from Phillips Road to Long Lake Road. Findings indicate that public support is strong for constructing an additional lane in each direction and adding a center divider with openings at Phillips and Long Lake Road. About eight out of ten respondents (81%) support the strategy with 60% indicating that they are "very likely to support" and 21% indicating that they are "somewhat likely to support" the additional lanes and center divider.

Public opinion regarding sidewalks and paved shoulders is evident from the findings of this survey. Support for these non-motorized recommendations is strong with approximately three out of four respondents indicating that they were either "very likely to support" or "somewhat likely to support" construction of paved shoulders and sidewalks between SR 16 and Long Lake Road.

Appendix A contains additional information regarding the public involvement process and this survey.

Steering Committee Objectives and Alternatives

Appendix B contains Objective Statements and Generic Alternatives that were developed by the Steering Committee to address issues relating to Mobility, Safety, and Public Transportation. Many of those objectives and alternatives will be satisfied with the completion of the above recommendations.

3.1.2 Long Lake Road to Southworth Ferry Terminal

Highway Capacity and Access Management

The Steering Committee does not recommend additional through travel lanes in this section of SR 160. However the Steering Committee concurs that if the nature of the traffic conditions change, such as increased freight travel, climbing lanes should be considered as an improvement strategy. This *RDP* will be updated periodically as changes occur along the corridor, thus allowing this *RDP* to be modified.

The steering committee concurred that the present *Access Management Plan* Class 3 designation is reasonable for this section of SR 160. A review of existing public and private road approaches was performed, confirming that the average spacing of driveway approach roads is typical of Class 3 facilities. Spacing and frequency of future driveways are regulated by permit processes.

Realign Banner Road Intersections

In relation to intersection spacings, access management, and future signal locations, thought should be given to realigning one or both of the Banner Road "T" intersections. This would create a single four-way intersection in place of the two current access points. Impacts of performing this were not analyzed in this route planning effort.

Non-Motorized Transportation

Construct Paved Shoulders

The steering committee agreed that this section should be improved for non-motorized travelers. Construction of paved shoulders is recommended along this section of SR 160. Additionally, either paved shoulders or sidewalks with a bike shoulder lane are recommended near the Sedgwick Junior High School, which is located at milepost 5.55. **Section 3.1.5 provides further information regarding non-motorized facilities.**

Highway Design Speed

Future highway safety improvement projects will be designed according to WSDOT design standards, which are based in part on design speeds. As part of this Route Development Planning effort, WSDOT staff evaluated SR 160 in order to determine a recommend design speed. In performing this analysis, WSDOT staff reviewed vehicle speed studies, the existing speed limit,

horizontal and vertical alignment data, and drove the route and cross streets to locate areas of sight distance concerns. As a result of this work the following design speeds are recommended for this section of SR 160.

A design speed of 45 miles per hour is recommended for SR 160 from Long Lake Road to Cottonwood Road. From Cottonwood Road to the Southworth Ferry Terminal a design speed of 40 miles per hour is recommended.

These design speed recommendations, in conjunction with the WSDOT Safety Program, will allow WSDOT design staff to realize practical highway design standards when designing future improvement projects.

Highway Right-of Way

Presently, SR 160 operates within a sixty foot-wide right-of-way corridor. Recommended shoulder improvements will likely require additional right-of-way. The degree of these impacts will be determined at the project development phase.

Future developments along SR160 should be designed with adequate set backs from SR 160, considering future highway right-of-way needs.

Justifications for Recommendations

This section of SR 160 travels through rural land use areas and steep terrain. The physical constructability of providing additional travel lanes in this section is very questionable. Due to the steep grades encountered in this section, as well as environmental issues, a mobility project would not realize a high benefit to cost (b/c) ratio. The land use designation of rural also influenced the Steering Committee's decision to not recommend additional through travel lanes in this section of SR 160.

Public Opinion Survey

Public support is very strong regarding the construction of paved shoulders along SR 160 from Long Lake Road to the Southworth Ferry Terminal. The public survey found that 63% of respondents are "very likely to support" and 26% are "somewhat likely to support" these non-motorized strategies. See Appendix A for further Transportation Survey information.

Steering Committee Objectives and Alternatives

Appendix B contains Objective Statements and Generic Alternatives that were developed by the Steering Committee to address issues relating to Mobility,

Safety, and Public Transportation. Many of those objectives and alternatives will be satisfied with the completion of the above recommendations.

3.1.3 Traffic Signal Recommendations

This section of the *Route Development Plan* presents recommendations on traffic signal issues along the SR 160 corridor.

The Right Reasons for Stopping Traffic

After lesser forms of control have proven ineffective, traffic engineers will often review an intersection to determine if a traffic signal is warranted. Traffic engineers follow specific, uniform guidelines to determine whether a traffic signal should be installed on a roadway. For example, they consider traffic volumes on the intersection approaches, the accident history, the number of other signals in the area and the effect a new signal will have on other streets in the vicinity. These criteria are critical in determining if a signal will have a positive effect on the safety and operational efficiency of an intersection.

Traffic signals impact highway mobility and highway safety and are often suggested as a cure for problems at intersections. They often control the operating level of service of a facility, often in a negative manner particularly if they are too closely spaced. Traffic signals often create a safer facility by reducing the severity of accidents at intersections. Traffic signals may offer a solution to some specific traffic problems, such as stopping the heavy flow of traffic in one direction to permit crossing by minor movements which could not otherwise move safely through an intersection. Traffic signals help traffic move more smoothly and safely only if used in the proper situations:

It is recognized that constructing unwarranted traffic signals can cause traffic to stop where it did not have to before. This can lead to more accidents and cause driver frustration, causing drivers to seek secondary, alternative roads. This can negatively impact the network of roadways, which may not have been developed to carry such travel demand.

State Route 160 Traffic Signal Vision

This section presents a long range plan of where traffic signals should be located along SR 160. The tables at the end of this section identify intersections along SR 160 that *should and should not* be considered for signalization in the future. This traffic signal "vision" was developed with assistance from the Olympic Region Traffic Engineer and is subject to change.

Where a particular intersection is identified in the following tables as a proposed future location for a traffic signal, it is important to know that the "candidate" intersection will have to meet the warrants and rank high on a regional list to become eligible for a traffic signal in the future. Generally,

intersections of county arterials or major/minor collectors will rank higher on the WSDOT Olympic Region Intersection Priority List. Traffic signal needs by private developments are not a priority, but rather, developers should be assisted in their plans to divert their access points to existing city and county street grid systems.

The WSDOT uses specific criteria when evaluating if a traffic signal is "warranted" at a certain location. These warrants have not been analyzed as part of this *Route Development Plan*. However, the *WSDOT Access Management Plan*, and its associated classification system was consulted for the purpose of presenting this "vision".

The *Access Management Plan* identifies SR 160 as a Class 3 facility. As stated in Chapter 1, a criteria of this designation is that intersection spacings should occur at one half mile intervals or greater. Some intersections along SR 160 are presently signalized, and it was determined that these should remain so.

A standard principle of the *Access Management Plan* classifications relates to multi-lane highway median designs. In the case of a Class 3 highway, a raised median is typically constructed to restrict left turns to one half mile or greater distances. As recommended in this report, SR 160 should be multi-laned from SR 16 to Long Lake Road. Beyond Long Lake Road the highway would not be multi-laned, allowing full access left turn opportunities similar to what exists today. These recommendations relate to the need for traffic signals at various key intersections. For instance, the 2.55 mile section that is planned for multi-laning is presently signalized at the westbound SR 16 ramps, Bethel Road, and Jackson Avenue. In addition to these signals, it is recommended that, when warranted, Converse Avenue also receive a traffic signal.

Table 3.1.3-1

SR 160 Traffic Signal Recommendations, SR 16 to Long Lake Road

Intersection Street Name	Left Right Both	State Route Mile Post	Distance to next Intersectio n (Miles)	Speed Limit (MPH)	Signalization			
					Existing Yes/No	Proposed Yes/No	Distance Between Signals	Comments
SR 16 Westbound On/Off Ramps	B	0.09	0.07	40	Yes	Yes	0.73 mi	Retain this existing signal
Bravo Terrace	R	0.16	0.28	40	No	No		Possibly retain left turn channelization
Geiger Rd SE	B	0.44	0.25	40	No	No		Candidate intersection for full turning access
Ramsey Rd	L	0.69	0.13	40	No	No		Right turns only, no median opening
Bethel Rd SE	B	0.82	0.33	40	Yes	Yes	0.50 mi	Retain this signal. A revision project (Right turn chan. is planned)
Estonia Ct SE	R	1.15	0.17	40	No	No		Right turns only, no median opening
Converse Ave SE	B	1.32	0.09	40	No	Yes *	0.50 mi	Candidate for signal / provide opening in median for left turns. (School vicinity).
Sherlyn Ave SE	R	1.41	0.06	40	No	No		Right turns only, no median opening
Dana Dr SE	R	1.47	0.10	40	No	No		Right turns only, no median opening
Brasch Rd SE	R	1.57	0.25	45	No	No		Right turns only, no median opening
Jackson Ave SE	B	1.82	0.22	45	Yes	Yes	0.22 mi	Retain this existing signal
Phillips Rd SE	B	2.04	0.50	45	No	Yes *	0.50 mi	Candidate for signal but is less than 1/2 mi from Jackson Ave. (Analysis of delay should be done).
Long Lake Rd SE	B	2.54	0.09	45	Yes	Yes	1.24 mi to Locker Rd	This Amber Flashing Signal is a candidate for full traffic signal (grades could be a problem)

* These are "candidate" locations for future signals as per the WSDOT Olympic Region Traffic Engineer. Refer to text on preceding page for additional information.

Table 3.1.3-2

SR 160 Traffic Signal Recommendations Lakeview Drive to Southworth Ferry Terminal

Intersection Street Name	Left Right Both	State Route Mile Post	Distance to next Intersection (Miles)	Speed Limit (MPH)	Signalization			Comments
					Existing Yes/No	Proposed Yes/No	Distance Between Signals	
Lakeview Dr/Pl SE	B	2.63	0.21	45	No	No		
Peppermill Pl SE	L	2.84	0.27	45	No	No		
Bodle Rd SE	R	3.11	0.46	45	No	No		
Mayvolt Rd SE (left) / Lake Valley Rd SE (right)	B	3.57	0.21	45	No	No		
Locker Rd SE	L	3.78	0.81	45	No	Yes	1.06 or 1.18 mi	Candidate for signal
Anderbar Rd SE	R	4.59	0.25	45	No	No		
Banner Rd SE	R	4.84	0.12	45	No	Yes*	2.34 mi or 2.46 mi	*Candidate for Signal at <u>only one location</u> . Therefore, consider realignment of Banner Roads resulting in 1 signal serving both.
Banner Rd SE	L	4.96	0.13	45	No	Yes*		
Arvick Rd SE	L	5.09	0.09	45	No	No		
Westway Dr SE	L	5.18	0.12	45	No	No		
Eastway Dr SE	L	5.30	0.25	45	No	No		
Sedgwick Jr High School	L	5.55	0.03	45	No	No		
Peterson Rd SE	R	5.58	0.03	45	No	No		
Sedgwick Cemetery	R	5.61	0.23	45	No	No		
Harper Hill Rd SE	L	5.84	0.23	45	No	No		
Cottonwood Dr SE	L	6.07	0.23	35	No	No		
Wilson Creek Road SE	B	6.34	0.15	35	No	No		
Siana Place SE	L	6.49	0.81	35	No	No		
Old SR 160	L	7.30	0.02	40	Stop Sign	Yes	---	Candidate for signal. Currently stop sign controlled on two of three legs. (Westbound traffic leaving ferry terminal is not stopped)
Rocky Road	L	7.32	0.02	40	No			
Sebring Dr	L	7.34	---	40	No			

End SR 160 Land Highway at Southworth Ferry Terminal, MP 7.47 = Begin SR 160 via Washington State Ferry Route

Source: WSDOT State Highway Log, Planning Report 1996

3.1.4 Highway Safety

Highway safety is a very important issue for all State Routes, and WSDOT addresses this issue throughout all programs, including such areas as Maintenance, Preservation, Improvements, and Traffic Operations. Here are a few examples, taken from the *WSDOT State Highway System Plan*, of specific Service Objectives and Action Strategies that address Highway Safety:

Maintain state highways on a daily basis to ensure safe movement of people and goods:

- Provide safe winter travel on highways that remain open to the public.
- Provide safe, reliable roadway surfaces through pavement patching, sealing, and surface treatments.
- Maintain visibility of traffic control and safety devices.
- Manage roadside vegetation to meet safety, aesthetic, and regulatory requirements.
- Keep existing structures safe and dependable.

Operate the highway transportation system safely and efficiently:

- Increase highway efficiency and safety through full utilization of the existing system.
- Improve arterial efficiency and safety through traffic signal timing and coordination efforts.
- Perform safety and efficiency investigations in response to constituent concerns to identify small cost operational enhancement opportunities.
- Develop and implement small cost, immediate solutions to address identified operational, safety, and efficiency concerns.

Preserve the highway infrastructure cost effectively to protect the public investment:

- Repave highways at regular intervals to minimize long-term costs. Restore existing safety features.

Provide the safest possible highways within available resources:

- Improve highway sections that have a high accident history.
- Improve roadways where geometrics, traffic volumes, and speed limits indicate a high accident potential.
- Construct intersection channelization, signals, or both when traffic volume warrants (thresholds) are met.

One function of the Route Development Planning process is to provide an opportunity for WSDOT staff to gather data that can support the various ways in which WSDOT addresses highway safety. The *Route Development Plan* does not make recommendations on specific highway safety improvements. That function is already provided within the WSDOT Program, in reference to the examples listed above, and through standards that are applied to many types of work that WSDOT performs on state highways. For specific highway safety improvement strategies currently identified over a 20-year projection on SR 160, please see the current *WSDOT State Highway System Plan*.

One specific safety recommendation that the *Route Development Plan* makes is on design speed. Design speed is defined as the maximum safe maintainable speed over a specific section of highway, when conditions are so favorable that the design features of the highway govern the maximum safe speed. Recommendations on design speed are based principally on terrain, type of highway, traffic volumes, as well as economic factors. Design speed will assist WSDOT in applying appropriate safety standards (for maintenance, preservation, improvements, traffic operations, etc.) such as vertical and horizontal alignment, and sight distance.

3.1.5 Non-Motorized Travel Facilities

The Steering Committee recommends improvements for pedestrians and bicyclists traveling in the SR 160 corridor. Recommendations for paved shoulders, or sidewalks with bike shoulder lanes, are presented in Sections 3.1.1 and 3.1.2. The following additional information was discovered during the preparation of this *Route Development Plan*, and shows a very high support for improved nonmotorized transportation facilities.

Kitsap County Bicycle Facility Designation

The *Kitsap County Greenways Plan* designates State Route 160 (from SR 16 to Bethel Road) as a *Secondary Bicycle Facility*. The *Kitsap County Comprehensive Plan, December 1996*, contains goals and objectives related to this designation. For instance, a stated goal relates:

“Maximize the opportunity for nonmotorized travel, including development of greenways”

Nonmotorized policies in the plan go on to suggest:

“Incorporate greenways projects into the overall transportation plan”

“Link greenway systems to bus, water transit, pedestrian, bicycle, and equestrian facilities”

South Kitsap School District "Safe Walk Route Plans"

The South Kitsap School District provided WSDOT with information regarding their "Safe Walk Route Plans" for three schools in the vicinity of SR 160. The information was provided on maps that identified a one mile radius forming a circle around each of the schools. The area enclosed within these circles were evaluated by the school district and certain transportation facilities (i.e. roads or trails) inside the circles have been identified by the school district as walking routes. Further information is provided below regarding which sections of SR 160 are identified as part of the safe walk routes. Overall, these walk route plans provide added support for the Steering Committee nonmotorized improvement recommendations presented in Sections 3.1.1 and 3.1.2 in this chapter.

WAC 392-151-025 mandates the preparation of "suggested route plans" and distribution of a "safe route to school map" to elementary school students. Although this regulation may raise questions concerning responsibility for preparing the plans/maps or the potential liability of the school district, the intent of the WAC is to see that young students and their parents have the safest route to and from school identified for them. This plan may include a school crossing along the state route.

Hidden Creek Elementary School

A section of SR 160 in the vicinity of Converse Avenue has been identified as part of the Hidden Creek Elementary potential "Safe Walking Plan". The school is located south of SR 160 on Converse Avenue. The safe walk route map provided by the school district identifies a one mile radius from the school as a zone of study. This zone includes SR 160 from the vicinity of Geiger Road to east of Phillips Road. This information helps support the inclusion of nonmotorized facilities along this portion of SR 160.

Sedgwick Junior High School

Since this school is located near SR 160, the one mile radius circle surrounding this school includes nearly a two mile long section of SR 160. The section can be described as beginning just west of Anderbar Road and ending just east of Wilson Creek Road. This information helps support the inclusion of nonmotorized facilities along this portion of SR 160.

South Colby School

This school is located nearly a mile north of SR 160. The one mile radius circle formed around this school appears to overlap with some of the section created around the Sedgwick Junior High School and does not include any additional sections of SR 160.

Public Opinion Survey Findings

The following public opinions regarding non-motorized improvements for SR160 were obtained through a traveler survey as part of this route planning effort. The results indicate a very high support for sidewalks and wider, paved shoulders.

SR 16 to Long Lake Road

Approximately three out of four respondents indicated that they were either "very likely to support" or "somewhat likely to support" construction of paved shoulders and sidewalks between SR 16 and Long Lake Road.

Long Lake Road to Southworth Terminal

Nearly two thirds of survey respondents were supportive of providing paved shoulders between Long Lake and the Southworth Ferry Terminal.

Sedgwick Junior High School Vicinity

Respondents were asked their likelihood of supporting construction of sidewalks near Sedgwick High School. Nearly nine out of ten (89%) of respondents favored this measure.

3.2 Washington State Ferry Service

This section of the *SR 160 Route Development Plan* presents the Washington State Ferry System Plan and related recommendations for the Southworth Ferry Terminal.

3.2.1 Washington State Ferry System Plan

During the time this *Route Development Plan* was prepared, the Washington State Ferries was drafting a long range Ferry System Plan. The Ferries System Plan was developed by considering population and employment projections and calculating the impacts on ferries. The finished version of the plan will serve as a blueprint for ferry service growth over the next 20 years, offering officials critical information as they make decisions on transportation funding.

The picture that has emerged from the initial drafts of the plan shows critical needs to increase ferry capacity on most routes in Puget Sound and to make substantial improvements at many docks to handle the increasing travel demand.

To keep apace of growth in the south Puget Sound area, a variety of additions are needed. Foremost is splitting up the current Fauntleroy/Vashon/Southworth route into three separate routes. In its place, ferries would operate between Southworth and Vashon, Fauntleroy and Vashon, and eventually Seattle and Southworth. The goal in the area is to accommodate increases in ridership and divert traffic growth away from the Fauntleroy terminal, which is already operating at capacity and has little if any room for expansion.

The draft plan also recommends passenger-only ferry service between Seattle and Southworth begin by the year 2000. Additionally, the system plan assumes that after 2012, the passenger-only service would be replaced by car ferries.

At the time of publication of this *Route Development Plan*, the WSF System Plan was still in draft form, with additional public involvement opportunities planned by WSF for 1998.

3.2.2 The Southworth Ferry Terminal Recommendations

The *Route Development Plan* Steering Committee recommends that further information is needed in order to make decisions about the Southworth Ferry Terminal.

An issue that remains to be addressed is the potential of future expansion of the ferry terminal. The *Route Development Plan* Steering Committee members discussed the importance of creating park-and-ride lots and transit facilities near the beginning of State Route 160. If such facilities were provided for travelers, the volume of vehicles traveling the eastern sections of the corridor could be reduced. This could potentially lessen congestion along SR 160 and at the Southworth Terminal. The Steering Committee feels that it makes good sense to reduce the number of vehicles traveling the corridor rather than provide parking and staging areas for vehicles at the ferry terminal.

The Steering Committee recommends that a circulation study be performed in the area of the Southworth Ferry Terminal to gain awareness of the future needs for this vital interface between the land and water portions of State Route 160.

The circulation study should begin after the anticipated 1998 adoption of the *Washington State Ferry System Plan*, as to provide study participants with information on which to base future travel assumptions. Suggested stakeholders in the circulation study should include, as a minimum, representatives from Port Orchard; Kitsap County; Washington State Ferries; Kitsap Transit, and WSDOT.

3.3 Public Transit Service and Park and Ride Lot Recommendations

3.3.1 Public Transit Service

Public transit services can create a positive effect on State Route 160 and the local transportation network by reducing the volumes of general purpose vehicles. The *WSDOT State Highway System Plan* assumes that some form of high capacity transit, such as commuter buses and rails, will be funded and in operation in the Central Puget Sound region in the next 20 years. The WSDOT supports efforts to provide increased transit service to SR 160 and is committed to providing safe and efficient access to transit users along the state route.

During the preparation of this *RDP*, a literature search of local and regional planning documents was performed. The *Kitsap Transit Long Range Plan* was consulted, as well as city, county, and regional transportation planning documents to acknowledge all plans for future transit service along or near SR 160.

The *Route Development Plan* Steering Committee recommends that transit service be improved near and along the SR 160 corridor as prescribed in the *Kitsap Transit Long Range Plan*.

Kitsap Transit Service Plans

During the period that this *Route Development Plan* was prepared, Kitsap Transit was also preparing an updated service plan. The following key transit service plans relative to SR 160 were identified in Kitsap Transit's *Transit Development and Long Range (7-Year) Plans, 1997 - 2003*, and are supported as recommendations from the SR 160 Steering Committee.

- In support of park-and-ride lots, Kitsap Transit criteria includes the facilitation of transit use of HOV treatments, including preferential signals at major intersections.
- Under the HOV Plan, Kitsap Transit identifies a phased approach for HOV priority treatment, including:
 - Opticom (signal pre-emption) which gives transit vehicles the right-of-way at signalized intersections.

-As the signal pre-emption system develops and traffic volumes continue to increase, transit vehicles will need a separate lane to allow the bypass of traffic queues at key intersections.

- In the out-years of the plan, full fledged HOV lanes are identified from the major ferry terminals outward. The WSDOT opinion is that this is outside of the 20-year range (2016) for the SR 160 RDP.
- The Plan also supports the development of a regional cooperative seamless fare collection system. Kitsap Transit will continue to work with the regional transit organizations (King County Metro, Pierce Transit, Sound Transit, Community Transit, and Everett Transit) and the WSF to develop a seamless, integrated fare system using contactless smart card technology.

Public Opinion Survey Findings

Ninety percent of respondents to a traveler survey indicated that they use public transit on SR 160 less than once a week and 10% use it once a week or more. However, over half of those using it more than once a week are frequent users, using it more than five times weekly. Those with Bremerton, Gig Harbor and Seattle as typical destinations were slightly more likely than average to use the bus more than five times a week. People who typically use SR 160 for shopping and other errands are less likely than commuters to use the bus frequently (4% vs. 10%).

A significant proportion (16%) of respondents indicated that they would use public transit more frequently if more bus runs were added. With regard to residence, support was strongest (21%) for those in the Port Orchard area.

Responses also varied significantly by destination; 34% of those reporting Seattle as their typical destination would use transit more if runs were more frequent, followed by Vashon Island (25%), Bremerton (17%) and Port Orchard (14%). Of those showing Gig Harbor as their typical destination, only 7% reported that they would use transit more frequently if it were available.

Of those using SR 160 primarily for work and school commutes, 21% reported that they would use transit more frequently if it were available.

3.3.2 Park-and-Ride Lots

Park-and-ride lots are becoming increasingly necessary in Kitsap County and the Puget Sound Region. These facilities promote ride sharing and increased use of public transportation, which in turn reduces the demand for increased automobile capacity. Motorists today and in the future will search for alternate modes of transportation, and if "inviting" these drivers may consider ride sharing, vanpooling and public transit. To be reasonably prepared for this and to plan for future growth, supporting infrastructure such as park-and-ride lots is vital.

Kitsap Transit Long Range Plan

The *Route Development Plan* Steering Committee recommends that existing park-and-ride lots along SR 160 should be improved.

- The park-and-ride lot located at Harper Evangelical Church, near the end of SR 160, should be expanded to provide additional capacity. Based on a steady stream of requests from transit customers and a steady overflow condition at this lot, Kitsap Transit is in the process of expanding the Harper Evangelical park-and-ride with purchase of the adjacent parcel to the west.
- As mentioned in Section 3.2.2, expansion of the Southworth Ferry Terminal lot is not recommended, but rather, a circulation study of the terminal should first be performed in order to best determine needs and improvement strategies. Additionally, Kitsap Transit and other Steering Committee participants agree that emphasis should be placed on developing other park-and-ride lots (see below), rather than encouraging increased vehicle travel from SR 16 to the Southworth Terminal.

The Steering Committee recommends that the following locations near SR 160 be pursued for the development of park-and-ride lots:

- **SR 16 / SR 160 Interchange vicinity**
Recommend further study of this site location (on the east side of interchange) for possible future park-and-ride lot.
- **SR 160 / Jackson Avenue Intersection Vicinity**
In the vicinity of this intersection, Kitsap Transit plans to develop a church parking lot into a park-and-ride lot.

Kitsap Transit is currently experimenting with the new policy of restricting parking in belief that clustering small park-and-ride lots scattered throughout

the community, and located at neighborhood center points provides a better performance in reducing vehicle miles traveled. For further information, consult the *Kitsap Transit Long Range Plan*.

As the corridor is developed, signal pre-emption and queue-cuts should be included so that transit can maintain at least equivalent travel time through the corridor to the terminal.

Public Opinion Survey Findings

A traveler opinion survey was conducted as part of this *Route Development Plan*. Survey respondents were asked to number, from 1 to 3, the park and ride improvements that they were most likely to support. **The most popular was expansion of the Southworth Ferry Terminal. Support was also strong for a new park and ride lot near SR 16 and SR 160.** Having a park and ride at this location was the first choice for 44% of those respondents with Gig Harbor as their typical destination, and for 40% of those respondents reporting South King County as their typical destination.

It could be presumed that ferry travelers who responded to the survey are accustomed to using the Southworth Terminal as their preferred parking location, and thus reported this as their preferred area to expand.

Based on the results of the survey, the park-and-ride lot strategies receiving the least public support overall are expansion of the existing Harper Church parking lot, and expansion of the Mullenix park and ride lot.

One strategy not receiving as much support was construction of a park and ride lot near SR160 and Jackson Avenue. This was the first choice of 18% of respondents, the first or second choice of 33% of respondents and among the top three choices for 46% of respondents.

The strongest support for expansion of the Harper Church lot was among those with Seattle, Vashon, or South King County as their typical destination (at 51%, 56%, and 60% respectively in the 'top three').

Interest in expansion of the Mullenix park and ride lot, while not high overall, did receive the highest level of interest among travelers to Port Orchard, with 34% placing it in among their top three choices.

3.4 Planned Improvements to Local Roadways

The following table provides a brief list of local roadways in the vicinity of SR 160 identified for future improvements. This information was obtained from the *Kitsap County Transportation Plan, April 1995*, and is subject to change.

Table 3.4: Selected List of Planned Improvements to Local Transportation Facilities Near SR 160

Roadway Name Section Description	Improvement Description
Bethel Road Lund Ave to SR 160	Widen to 5 Lanes
Bethel Road Lund Ave to Mile Hill Drive	Widen to 5 Lanes
Bethel Road At SR 160	Right lane; signal
Tremont St/Lund Ave. SR 16 to Bethel Avenue	Widen to 5 Lanes (4 Lane bridge)
Mile Hill Dr. (SR 166) Bethel Avenue to Long Lake Road	Widen to 5 Lanes
SR 16 At Burley-Ollala Road Intersection	Construct New Interchange to remove at-grade intersection

Source: *Kitsap County Transportation Plan, April 1995.*

3.5 Freight Mobility in Kitsap County

During the preparation of this *Route Development Plan*, some stakeholders on the Route Development Steering Committee suggested that SR 160 should be considered as a potential freight hauling corridor. This idea surfaced perhaps due to the link SR 160 provides with its connection to SR 16, Lake Flora Road, and the Washington State Ferry at Southworth.

The Steering Committee determined that freight mobility in Kitsap County was an issue that reaches far beyond the SR 160 corridor, and they recommended that it should be studied separately from this *Route Development Plan*.

During the summer and fall of 1997, a separate study effort was performed on freight movement in the Kitsap County area. This effort was conducted by the Washington State Department of Transportation (WSDOT) Olympic Region Transportation Planning Office, Kitsap County Public Works, and the Port of Bremerton. This work included a synthesis of existing freight travel data, a review of planned and programmed transportation improvements that relate to freight mobility, and the facilitation of two roundtable discussions that were

comprised of Kitsap County elected officials, the private sector, and WSDOT staff, and local agency staff.

In October, 1997, the WSDOT Olympic Region Transportation Planning Office published a report of findings titled *An Overview of Freight Mobility Issues in Kitsap County*. The study determined that the north-south corridors of SR 16 and SR 3 provided the main freight hauling corridors within Kitsap County. Some of the key findings from that report, related to SR 160 include:

"Kitsap County needs a freight hauler origin-destination (O-D) study. The O-D study should be a joint effort between state and local agencies, and should be generated from the Kitsap Regional Coordinating Council (KRCC)."

"Providing freight mobility corridor enhancements in conjunction with the Bremerton Airport, including SR 3 north and south, as well as Lake Flora Road to SR 16, should receive future consideration by WSDOT and Kitsap County. Glennwood Road and Lake Flora Roads, and their connections to SR16/SR160, should also receive future consideration by Kitsap County for freight mobility."

"The freight market generally relies on *Just In Time* delivery. The uncertainty of ferry boat wait times and the lack of freight capacity that the ferry system can provide makes them a small player in the freight transportation network. This suggests limited interest or support for improving SR 160/Lake Flora Road as a freight connector between the Bremerton National Airport and the Southworth Ferry Terminal. The exception is that freight haulers do use the ferry system to move goods from the north end of the Kitsap Peninsula to destinations north of Seattle. However, this is a relatively minor volume compared to overall highway use."

3.6 WSDOT Program Structure and Project Implementation

The recommended improvement strategies presented in this *Route Development Plan* help WSDOT to further the visions and strategies contained in the current *State Highway System Plan* as it relates to U.S. 12, by providing a more in-depth analysis of the route. The recommendations in this *RDP* focus on the Improvement Program contained in the *State Highway System Plan*. The following description of *Washington's Transportation Plan*, the *State Highway System Plan*, and the WSDOT Operating Budget is provided to help the reader understand how improvement projects are prioritized and funded.

3.6.1 Washington's Transportation Plan

The Washington State Transportation Commission through the efforts of the Washington State Department of Transportation is meeting the future challenges facing the state's transportation systems by developing *Washington's Transportation Plan (WTP)*. This plan addresses transportation facilities owned and operated by the state, including state highways, the Washington State Ferries, and state owned airports. It also addresses facilities and services that the state does not own, but has an interest in, as they are vital to the entire transportation system. These include public transportation, freight rail, intercity passenger rail, marine ports and navigation, nonmotorized transportation, and aviation. This planning is being carried out in cooperation with local governments, regional agencies, and private transportation providers to ensure that Washington's transportation system provides convenient, reliable, efficient, and seamless connections for all citizens.

WTP presents a sensible, 20 year vision for the state owned and state interest modes of transportation. Transportation "needs" have been identified for each mode and "service objectives" with associated action strategies have been developed to address those needs.

3.6.2 State Highway System Plan

The state owned component of *WTP* is commonly referred to as the *State Highway System Plan (SHSP)*. The *SHSP* is comprised of four main categories:

- **Maintenance** - Maintain state highways on a daily basis to ensure safe, reliable, and pleasant movement of people and goods.
- **Preservation** - Preserve the highway infrastructure effectively to protect the public investment.
- **Traffic Operations** - Operate the highway transportation system safely and efficiently.

- **Improvements** - This program is concerned with making the highway system work better. There are four subprograms which were developed for this purpose. They are:
 1. Mobility - Improve mobility within congested corridors.
 2. Highway Safety - Provide the safest possible highways within available resources.
 3. Economic Initiatives - Support efficient and reliable freight and goods movement. Support tourism development and other Washington industries. Reinforce the state's competitive position in international trade.
 4. Environmental Retrofit - Retrofit state highway facilities as appropriate to reduce existing environmental impacts.

Needed transportation projects are identified based on achieving WSDOT service objectives over the 20-year period. At the time of this printing, the total cost estimate associated with meeting all service objectives over the 20 year timeframe exceeds 40 billion dollars. Three different scenarios were looked at in relation to funding the improvements to meet the identified 20-year needs. Three possible revenue scenarios are: 1) no revenue increase for 20 years; 2) revenue increases based on a historical trend line; 3) a fully funded 20 year system plan. The Transportation Commission selected the trend line scenario to establish a baseline funding "cutoff" to establish priorities for all needed projects. The current goal of the Transportation Commission is to fully fund the safety subprogram, the environmental retrofit subprogram, and the economic initiative subprogram of the 20 year *SHSP*. Projects within these subprograms will be prioritized to determine the order in which needed improvements will be constructed.

Using the 20-year historical trend line funding scenario, the mobility subprogram will not be fully funded. There is simply not enough revenue to address all the capacity needs in the state. Two different lists of mobility projects are included in the *SHSP*. The first is financially constrained and contains the projects that are likely to be funded over 20 years. The second list is not constrained and includes the remaining projects that are needed but not funded under the 20 year trend line scenario.

3.6.3 WSDOT Two Year Operating Program

To advance the most important projects in all subprograms of the *SHSP*, a Two Year Operating Program is developed based on proposed improvement strategies in the financially constrained 20 year plan. It is the intention of WSDOT to ultimately create a Six Year Plan, from which future Two Year Operating Programs would be developed. The Six Year Plan will also serve the WSDOT Olympic Region in helping to identify priorities for project scoping efforts.

3.6.4 SR 160 Improvements With Funding Sources Identified

At the time of this *Route Development Plan* printing, the following projects and/or strategies related to SR 160 were identified as funded in the various plans and programs discussed above.

- **SR 160 Pavement Overlay Project, SR 16 to Ferry Dock**
This highway preservation project is partially funded through the WSDOT Two Year (1997-1999) Operating Program. Specifically in the 1997-1999 biennium, this project has received funding for design with construction scheduled for the Spring of 1999.
- **SR 160 Widening, SR 160/SR 16 Interchange to Bethel Road Vicinity**
This highway mobility improvement strategy aligns with the Steering Committee's recommendation of constructing a four lane highway with a restrictive median. The strategy is expected to receive funding within the next 20 years, since it is included in the financially constrained element of the *WSDOT SHSP (1999 - 2018)*. *SHSP* cost estimates (in current year dollars) identify that this mobility strategy will likely cost between \$11,560,000 and \$15,030,000.
- **SR 160 Cross-section / Geometric and Traffic Improvements, Estonia Court SE Vicinity to Mayvold/Lake Valley Road SE Vicinity**
This highway safety improvement strategy is included in the financially constrained element of the *SHSP* and thus is expected to be funded within the next 20 years. In terms of current dollars, this strategy is expected to cost between \$10,480,000 and \$13,620,000.

3.6.5 SR 160 Improvements With No Funding Sources Identified

At the time of this *Route Development Plan* printing, the following strategies related to SR 160 were identified in the *SHSP* as excluded from the financially constrained element.

- **SR 160 Widening, Bethel Road Vicinity to Jackson Avenue Vicinity**
This highway mobility improvement strategy aligns with the Steering Committee's recommendation of constructing a four lane highway with a restrictive median. The strategy is not expected to receive funding within the next 20 years, since it is excluded from the financially constrained element of the *WSDOT SHSP (1999 - 2018)*. *SHSP* cost estimates (in current year dollars) identify that this mobility strategy will likely cost between \$12,000,000 and \$15,600,000.
- **SR 160 Widening, Jackson Avenue Vicinity to Long Lake Road**
This highway mobility improvement strategy aligns with the Steering Committee's recommendation of constructing a four lane highway with a restrictive median from SR 16 to Long Lake Road. The strategy is not expected to receive funding within the next 20 years, since it is excluded from the financially constrained element of the *WSDOT SHSP (1999 - 2018)*. *SHSP* cost estimates (in current year dollars) identify that this mobility strategy will likely cost between \$8,400,000 and \$10,920,000.
- **Channelization and Signals, Long Lake Road to Ferry Terminal**
This highway mobility improvement strategy will support the traffic signal vision (see Section 3.1.3) presented in this *RDP*. The strategy is not expected to receive funding within the next 20 years, since it is excluded from the financially constrained element of the *WSDOT SHSP (1999 - 2018)*. *SHSP* cost estimates (in current year dollars) identify that this mobility strategy will likely cost between \$60,000 and \$78,000.

For further information about highway improvement strategies, consult the most current *State Highway System Plan*.

A.1 The SR 160 Route Development Steering Committee

A Steering Committee was formed to assist the Department of Transportation Olympic Region Planning Office in developing this long range plan for SR 160. The Steering Committee is comprised of representatives from the City of Port Orchard, Kitsap Transit, Kitsap County, Puget Sound Regional Council, Washington State Ferries, WSDOT Office of Urban Mobility, WSDOT Port Orchard Project Engineer Office, WSDOT Olympic Region Project Development and the WSDOT Olympic Region Planning Office.

The Steering Committee provided valuable input to the process. Through a series of Steering Committee meetings held between December 1996 and January 1998, this "consensus-based" Route Development Plan was created. In addition to providing their respective agency's long range plans as they related to SR 160, the Committee established a set of Objective and Generic Alternative Statements (see Appendix B) that was used to identify issues and areas of improvement.

A.2 Agency Planning Documents

A literature review was performed during the preparation of this RDP in an effort to determine agency goals and policies as related to SR 160 and the surrounding network of transportation facilities. The transportation and land use elements of the comprehensive plans of the City of Port Orchard and Kitsap County were reviewed. Other documents such as Puget Sound Regional Council's *Metropolitan Transportation Plan, May 1996* and the *Kitsap Transit Long Range Plan* were also researched. It was found through the literature review that these transportation plans and the *WSDOT State Highway System Plan*, and *Washington State Ferries System Plan* are aiming toward common goals and objectives of transportation planning, such as finding ways to reduce the use of single occupant vehicles. The Steering Committee has taken into consideration the local and regional transportation plans when strategies were proposed to improve the route corridor of SR 160.

A.3 Public Open Houses

Public involvement meetings provide the community and the Steering Committee with opportunities to learn and share information about SR 160. This route planning effort included two public open house meetings.

The first Public Open House was held at the Givens Community Center in Port Orchard on Wednesday March 19, 1997. This first open house provided the public an opportunity to become involved in the long range planning process of State Route 160. It was a chance for people to express their ideas about State Route 160, and to learn of basic improvement concepts developed by the Steering Committee. Approximately 80 participants were present and shared their ideas and opinions and learned about the long range planning process.

The second open house provided the public an opportunity to review what had developed from their previous input and provide feed back comments on the improvement strategies. Approximately 40 people attended this forum held at the Givens Community Center on June 17, 1997 from 4:00 to 8:00 p.m.

The following table identifies the many public and agency meetings held in connection with this route development planning process.

A.4 Public and Agency Meetings

The following table summarizes the meetings that took place which enabled the creation of this "consensus-based" Route Development Plan.

Table A.4
SR 160 Route Development Plan Meetings Summary

MEETING	DATE	LOCATION	ATTENDEES
Initial Steering Committee Meeting	12/03/96	Kitsap County Public Works	Puget Sound Regional Council Peninsula RTPO Kitsap County City of Port Orchard Kitsap Transit WSDOT Olympic Region Project Development WSDOT Olympic Region Planning
Washington State Ferries Open House S. Sound Corridor (This was one of several meetings hosted by WSF)	1/09/97	Harper Evangelical Free Church, Sedgwick Rd.	Public Washington State Ferries Kitsap County KJS Associates WSDOT Olympic Region Planning
Focus Meeting: Travel Demand Model Data Sources and other issues-Information Sharing	1/28/97	Kitsap County Public Works	Washington State Ferries Kitsap County Peninsula RTPO Hewitt Isley WSDOT Olympic Region Planning WSDOT Office of Urban Mobility
WSDOT Olympic Region	2/7/97	WSDOT Olympic Region, Tumwater	WSDOT Olympic Region Planning WSDOT Olympic Region Project Development
2nd Steering Meeting	2/12/97	Kitsap County Public Works, Port Orchard	Puget Sound Regional Council Peninsula RTPO Kitsap County City of Port Orchard Kitsap Transit WSDOT Olympic Region Planning
Public Open House	3/19/97	Givens Community Center, Port Orchard	Public Kitsap County Peninsula RTPO WSDOT Olympic Region Planning WSDOT Port Orchard Project Engineer

Table A-4 (con't)**SR 160 Route Development Plan Meetings Summary**

MEETING	DATE	LOCATION	ATTENDEES
3rd Steering Meeting	4/2/97	Kitsap County Public Works, Port Orchard	Peninsula RTPO Kitsap Transit Kitsap County WSF WSDOT Port Orchard PEO WSDOT Office of Urban Mobility WSDOT Olympic Region Planning
4th Steering Meeting Draft RDP Review	5/29/97	Kitsap County Public Works, Port Orchard	Kitsap Transit Kitsap County Kitsap County DCD WSDOT Port Orchard PEO WSDOT Office of Urban Mobility WSDOT Olympic Region Planning
WSDOT Draft Review Meeting	7/28/97	Olympic Region HQ, Tumwater	WSDOT Olympia Service Center and WSDOT Olympic Region
Public Open House	8/7/97	Givens Community Center, Port Orchard	Public Kitsap County Peninsula RTPO WSDOT Olympic Region Planning WSDOT Port Orchard PEO
Port Orchard City Council Presentation	8/11/97	City Hall	Public City of Port Orchard WSDOT Olympic Region Planning
5 th (final) Steering Meeting WSF System Plan reviewed and Draft RDP further review.	1/15/98	Kitsap County Public Works, Port Orchard	City of Port Orchard Kitsap Transit Kitsap County Puget Sound Regional Council Washington State Ferries WSDOT Port Orchard PEO WSDOT Office of Urban Mobility WSDOT Olympic Region Planning
Port Orchard City Council Presentation	5/11/98	City Hall	Public City of Port Orchard WSDOT Olympic Region Planning

A.5 Public Opinion Surveys

Public opinion surveys are often used as a tool to learn from the traveling public how transportation services can be improved. The WSDOT utilized the services of the Steering Committee and the consulting firm Pacific Rim Resources to conduct two public opinion surveys about SR 160.

At the first Public Open House participants were asked to complete a survey form designed to allow the community an opportunity to share their concerns about Sedgwick Road and provide opinions on initial improvement concepts. The Steering Committee used this information to fine tune concepts developed early in the route planning process. The results of this preliminary survey were used to develop a more formal second survey of travelers using SR 160.

The second public opinion survey was developed to gain feedback regarding specific improvement recommendations. In order to reach the actual users of State Route 160, approximately 2880 vehicle license plates were collected along the entire route by WSDOT staff during the month of March, 1997. The license plate data was used to produce names and addresses of the owners of the vehicles observed using the highway. Upon gaining this information, the second public opinion survey was mailed to the traveling public. Findings from this survey support the Steering Committee's recommendations to improve SR 160. This survey titled *Transportation Survey Results State Route 160* are included here for informational purposes.

PACIFIC RIM RESOURCES

Public Affairs and Communications

Washington State
Department of Transportation

**Transportation Survey Results
State Route 160**

28 July 1997

Prepared by:

Pacific Rim Resources

600 University Street, Suite 2010
Seattle, Washington 98101

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STATE ROUTE 160 TRANSPORTATION SURVEY

EXECUTIVE SUMMARY AND IMPLICATIONS

Introduction

This report summarizes data gathered through a survey conducted between June 12 and June 25, 1997 with users of Washington State Route 160 ('SR160'). Self-administered surveys were sent to the residences of actual users of this State Route. Users were identified by matching license plate numbers of cars traveling along the route corridor in March of 1997 with the names and addresses of registered vehicle owners. The survey was sent to 2,487 people identified as users of SR160.

A total of 351 completed surveys were returned over a two-week period, a 14.1% response rate.

This survey process is part of a public involvement program being conducted by the Washington State Department of Transportation Olympic Region to get feedback from the public for a corridor planning effort underway. In addition to these surveys, the Department has been guided by the input of an interjurisdictional steering committee and a series of community open houses to familiarize residents and businesses with the purposes of the Corridor Planning effort.

Organization of this Report

This Executive Summary is structured so that it can serve as a stand-alone report and as an introduction to the full report. As such, it includes a summary of data implications and a brief overview of the corridor.

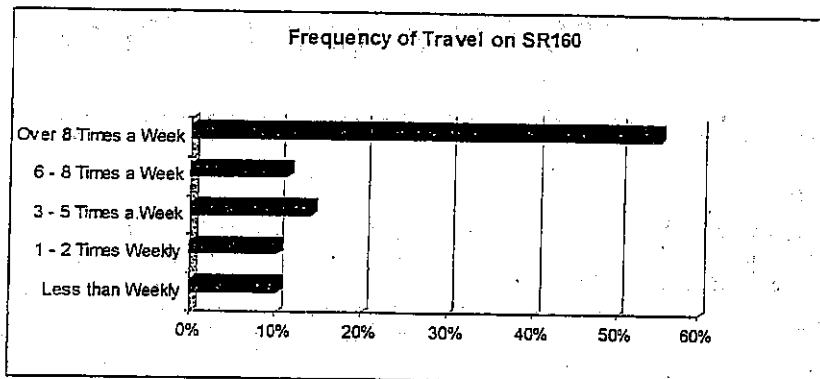
Data Implications

This survey was conducted to obtain a broad assessment of public preferences for potential improvements on the corridor. The questionnaires were structured to respond to the following research questions:

- What are the corridor use patterns?
- What are the important traffic issues related to the state route?
- What is the public's assessment of various suggested strategies for addressing traffic issues?

Corridor Use Patterns

Results indicate that the majority of respondents travel the route over eight times weekly. For the purpose of this report this group is referred to as 'frequent users' or 'commuters'. The majority of the travel is conducted for the purpose of commute to school or work.



Regarding type of travel, the vast majority of those using the corridor (98.8%) typically use personal vehicles ('Car or Pickup Truck') for transportation.

Important Traffic Issues

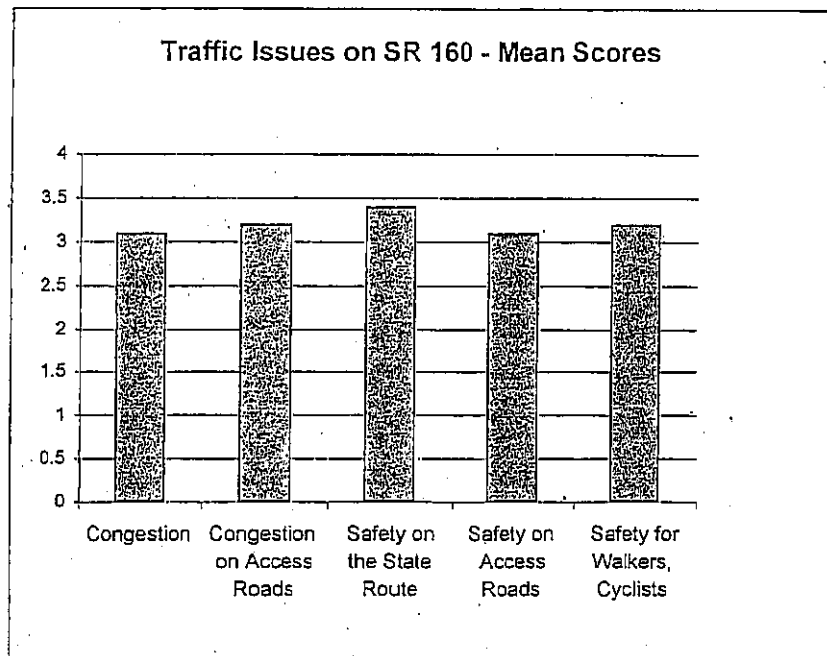
The survey asked respondents to assess the importance of five categories of traffic issues—

- Congestion on the State Route
- Congestion on roads accessing the State Route
- Safety on the State Route
- Safety on State Route Access Roads
- Safety for walkers and cyclists

Respondents rate the level of importance from '1' to '4', where '1' connotes 'Not important' and '4' connotes 'Very Important'. The mean or average score given by respondents is used in the following chart as an indicator of the significance of the various issues.

As the first chart indicates, each of the five issues are considered important by respondents with 'Safety on the State Route' receiving the highest score. This is followed closely by 'Congestion on the State Route', and 'Congestion on Intersecting Roads'.

Specific traffic issues noted by respondents tended to fall into three categories – congestion, safety, maintenance or engineering problems. In-depth discussions of significant traffic issues are found in the corridor-specific section of this report.



Public Assessment of Various Suggested Strategies

To address traffic issues, respondents tend to favor strategies involving engineering or structural changes. A relatively small number support, or are likely to use, enhanced transit services such as increased frequency of bus runs or additional or expanded Park and Ride lots. However, given the relatively large scale of private vehicle use to transit use, even a modest shift away from private ridership and toward additional public transit use could have a significant impact on gross public transit ridership levels.

There tends to be a positive correlation between the level of support of structural traffic improvement strategies and the frequency of corridor use. Frequent users are more likely to be supportive of efforts to both increase safety and reduce congestion. Not surprisingly, support for area-specific strategies are generally more strongly supported by those travelling through those areas.

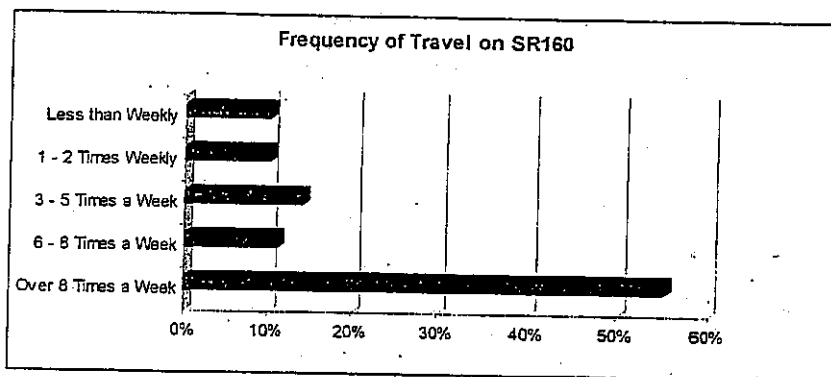
SR160 Corridor Survey DETAILED FINDINGS

Please note that, due to the nature of this questionnaire, the respondent base number frequently changes. Inherent in the survey questionnaire are several skips (i.e., people were asked to not comment on sections of the State Route that they were not familiar with).

State Route 160 runs east from State Route 16 to the community of Southworth, the western terminus of the Fauntleroy - Southworth state ferry run. It is a major commuter route from the Kitsap Peninsula to the City of Seattle and points eastward.

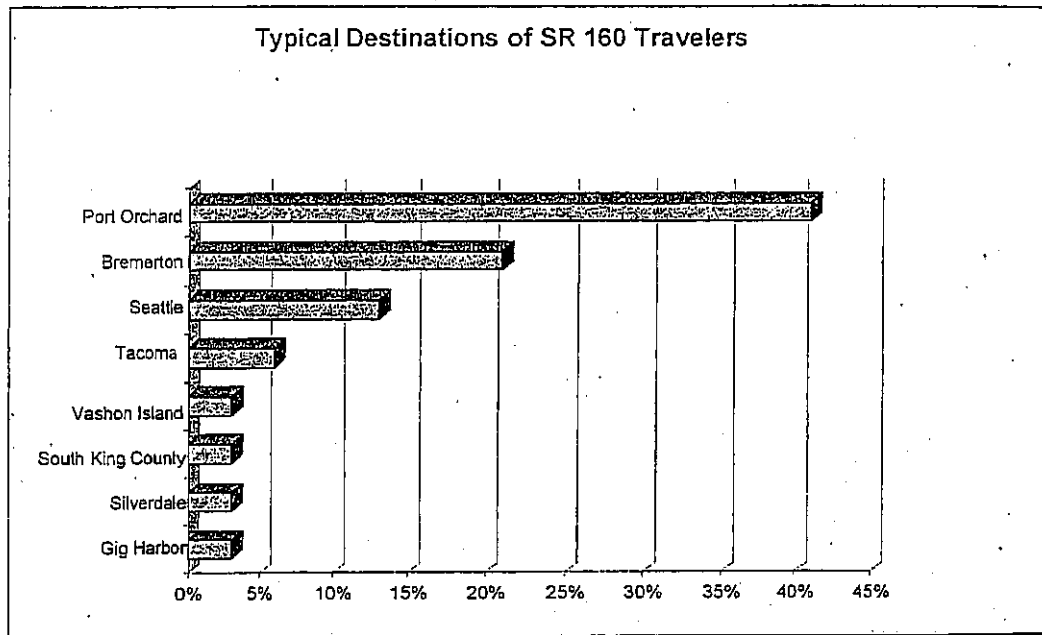
General Travel and Travel Patterns

Respondents were asked about their frequency of travel along SR160 (for the purposes of the survey, respondents were asked to count each one-way trip separately.) The majority of travelers (55%) make more than eight trips weekly along SR160 followed by 14% making trips 3 to 5 times per week and 11% make 6 to 8 trips. Those traveling on SR160 1 to 2 times per week made up 10% of the respondents; another 10% report traveling SR 160 less than once per week.



When asked their typical modes of transportation along SR160 an overwhelming proportion (99%) indicated that travel by car or pickup truck is their typical mode of transportation; 1% indicated commercial vehicle travel as their typical mode of travel.

Port Orchard is the typical destination of 41% of the respondents, followed by Bremerton (21%), Seattle (13%), and Tacoma (6%). Vashon Island, South King County, Silverdale and Gig Harbor were selected by 3% of respondents as their 'typical destination'. The communities of Southworth, Bangor, and Manchester were each chosen by 1% of respondents.

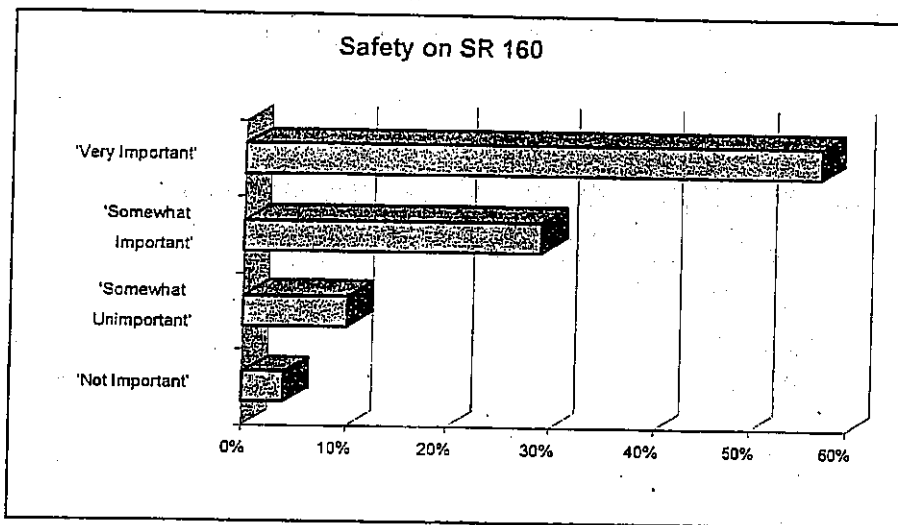


Respondents were asked the primary reason for traveling SR160. The majority (52%) uses it to commute to school or work and 37% use it for shopping and other errands. Other reasons for travel on SR160 included 'Social visits' with 3% and 'Leisure activities' with 2%.

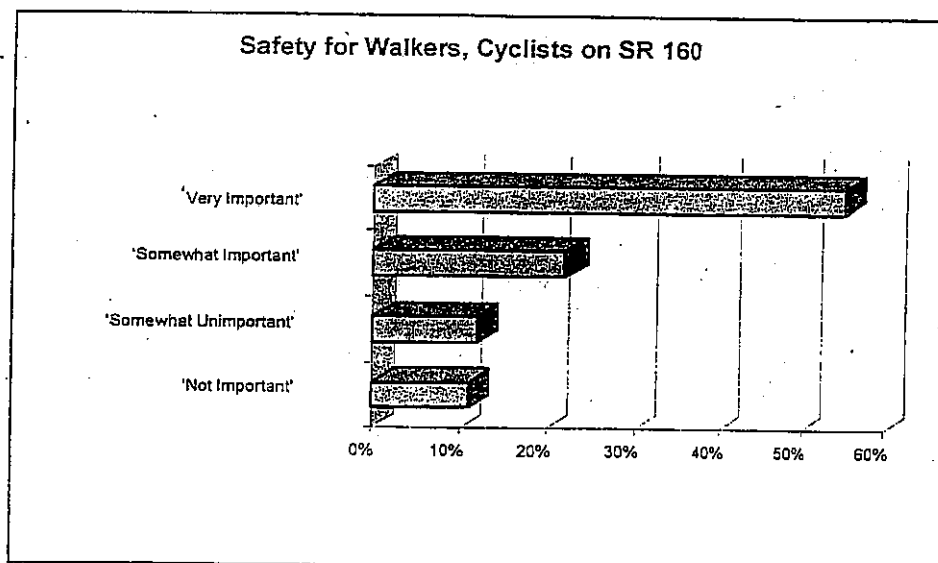
Main Traffic Issues

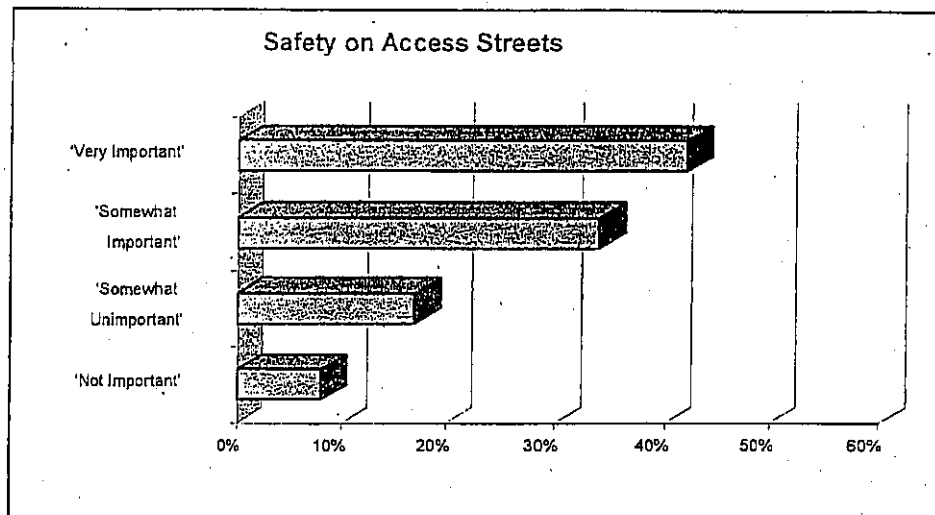
Respondents assessed the importance of five issues related to SR160 and the roads accessing it. By rating the issues from 1 to 4, with '1' indicating 'Not Important' and '4' indicating 'Very Important'.

Safety is a significant concern for most residents, with 57% providing a rating of '4' ('Very Important') and 29% providing a '3' rating for the importance of addressing safety on SR160.

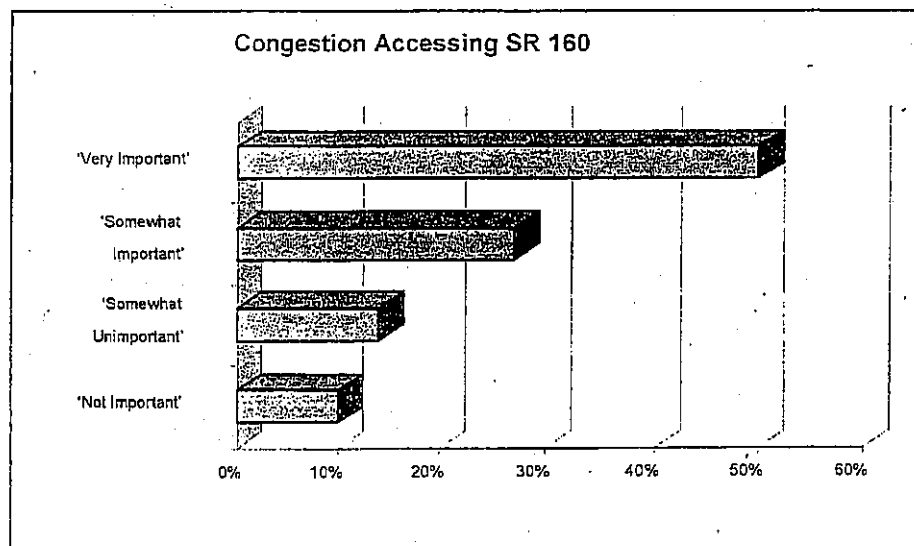


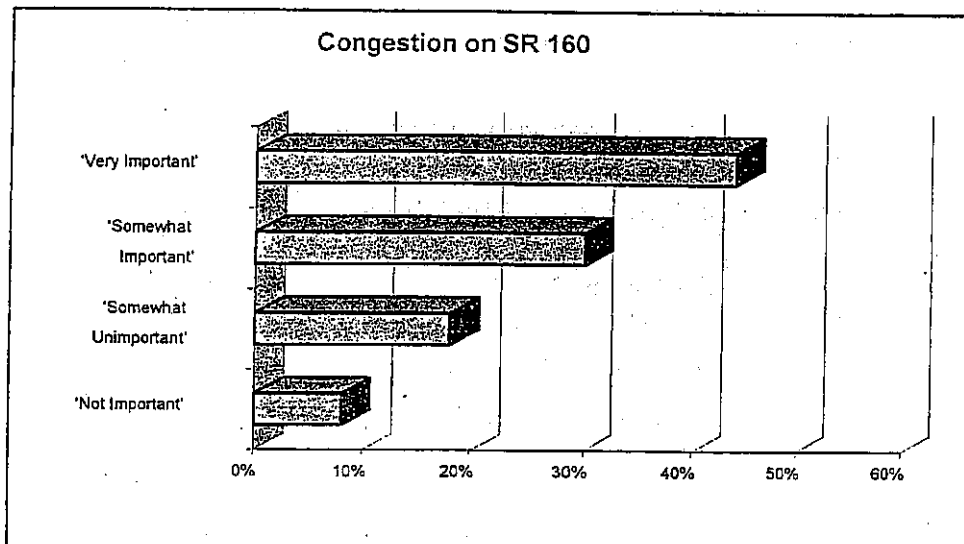
Pedestrian and cyclist safety is also a leading concern, with 55% giving safety for pedestrians and cyclists a '4' rating and 22% giving a '3' rating. Safety on access streets was identified as important by 42% of the respondents.





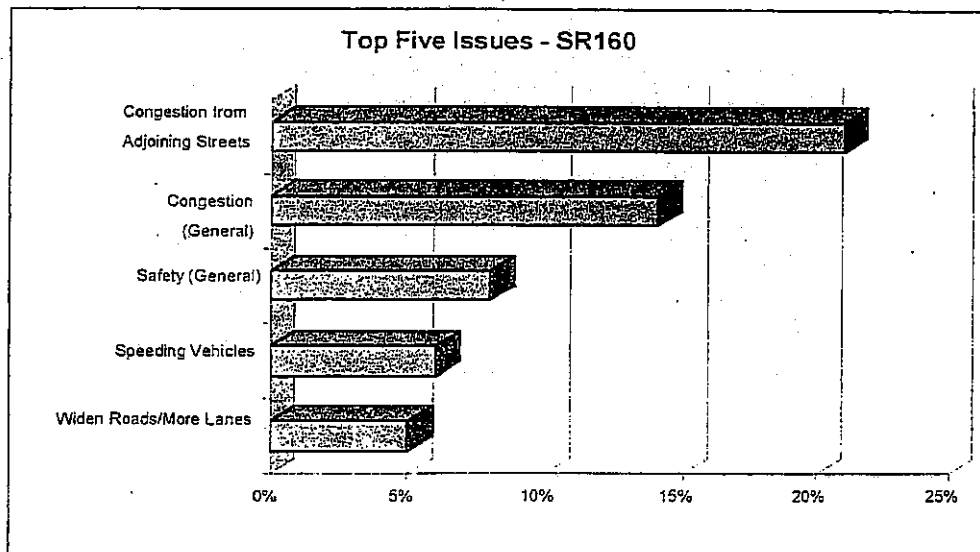
Congestion is also a concern, with 50% indicating that addressing congestion on roads accessing SR160 is 'Very Important'. Congestion on SR160 itself appears to be less of a concern, with 44% indicating that it is 'Very Important' to address.





Most Significant Traffic Issues

Respondents were given the opportunity to name the most significant traffic issue to address on or around SR160. Of the survey respondents, 225 provided written responses. Of the responses, 47 (21%) identified congestion accessing SR160 from adjoining streets as the most significant issue while 31 (14%) identified general congestion as the most significant issue. 'Safety' (8%) and 'Speeders' (6%) followed.



Important traffic issues tended to fall into three categories:

- Congestion - 44% of the respondents suggested congestion as the major traffic problem needing addressing.
- Safety - 26% suggested safety-related improvements as the most important ones to address.
- Engineering/Structural - 37% of the comments identified engineering/ structural problems..

Somewhat understandably, a small number (2%) of respondents wrote down 'Ferry Traffic' as the most important issue to address.

Streetlight Placement

The majority of respondents (54%) placed the highest priority on placing additional lights at busy intersections between SR16 and the Southworth Ferry Terminal. The next most popular response was the placement of streetlights at busy intersections between SR16 and Phillips Road, with 42% giving that the highest priority. When asked about providing streetlights at places other than busy intersections, support dropped off significantly with 26% giving the approach highest priority between SR16 and Phillips Road and 28% giving it highest priority from SR16 and the Southworth Ferry Terminal.

Traffic Congestion Strategies

Participants were asked to comment on several possible strategies for addressing traffic congestion along SR160, ranking each strategy from '1' to '4', where '1' connotes "Very Unlikely to Support" and '4' connotes "Very Likely to Support". The average score given by respondents is used in the tables below as an indicator of overall support. A more detailed analysis of support is found in the accompanying text.

Strategies for SR160 between SR16 and Phillips Road

Construction of Additional Lanes

Respondents who were familiar with SR160 between SR16 and Phillips Road were asked about their level of support for construction of two lanes in each direction separated by a landscaped median, with openings at major intersections for turns and U-turns. Support for this approach is fairly strong, with 51% indicating that they are "Very Likely to support" and 27% indicating that they are "Somewhat Likely to support." Fifteen percent of respondents indicated that they are "Very Unlikely to support" the approach, while 7% indicated that they are "Somewhat unlikely to support" the approach. Support is strongest among those people who make more than eight trips along SR160 each week, with 58% indicating that they are "Very Likely support" the approach.

Construction of Sidewalks and Bike Lanes

There is overall support for sidewalks and/or bike lanes between SR16 and Phillips Road to address pedestrian and cycling safety concerns. A majority (55%) indicated that they are "Very Likely to support" the addition of sidewalks and/or bike lanes while 22% indicated that they are "Somewhat Likely to support" the approach.

There is a fair amount of opposition, with 13% indicating that they are "Very Unlikely to support" the approach, while 10% indicated that they are "Somewhat unlikely to support" the approach.

Proposed Strategies between SR16 and Phillips Road	
Strategy	Mean Score
Two additional lanes in each direction; landscaped median; turn openings at major intersections.	3.1
Sidewalks and/or bike lanes for Safety	3.2
NOTE: Scores range from '1' to '4', with '1' "Very Unlikely to Support and '4' Very Likely to Support'.	

Strategies for SR160 between Phillips Road and Long Lake Road

Construction of Additional Lanes

Support is strong for constructing an additional lane in each direction and adding a center divider with openings at Phillips Road and Long Lake Road. About 8 out of 10 respondents (81%) support the approach with 60% indicating that they are "Very Likely to support" and 21% indicating that they are "Somewhat Likely to support" the addition of the lanes. The results vary significantly based on frequency of use of the highway, with only one-third of those using SR160 three or fewer times per week supporting additional lanes, while two-thirds of those using SR160 over eight times per week supporting additional lanes.

Construction of Sidewalks and Bike Lanes

There is fairly strong overall support for sidewalks and/or bike lanes between Phillips Road and Long Lake Road, but the support is slightly less than that for the section of SR160 between SR16 and Phillips Road. A majority (47%) indicated that they are "Very Likely to support" the addition of sidewalks and/or bike lanes while 25% indicated that they are "Somewhat Likely to support" the approach. Of those not supporting sidewalks and bicycle lanes 15% indicated that they are "Very Unlikely to support" the approach, while 13% indicated that they are "Somewhat unlikely to support" the approach. Again, frequency of travel along SR160 appears to be related to support for travel amenities. Among strong supporters, minority (25%) of those using SR160 three or fewer times per week strongly support sidewalks and bike lanes in this area, while 53% of those using SR160 over eight times per week strongly support additional lanes. Sixty percent of the less-frequent users are either "Very likely" or "Somewhat likely" to support the approach (25% "Very likely", 35% "Somewhat likely" while 74% of frequent users are either "Very likely" or "Somewhat likely" to support the approach (53% "Very likely", 21% "Somewhat likely".)

Proposed Strategies between Phillips and Long Lake Roads	
Strategy	Mean Score
One additional lane in each direction; center divider; turn openings at Phillips and Long Lakes Roads	3.3
Sidewalks and/or bike lanes for Safety	3.0
NOTE: Scores range from '1' to '4', with '1' "Very Unlikely to Support and '4' Very Likely to Support'.	

Strategies for SR160 between Long Lake Road and the Southworth Ferry Terminal

Providing Paved Shoulders

Nearly two thirds (63%) of respondents are "Very Likely to Support" providing paved shoulders between Long Lake and the Southworth Ferry Terminal, while 26% indicate that they are "Somewhat Likely to Support" the approach. Again, support is slightly higher among those who are frequent travelers of SR 160; those with Vashon or Seattle as their frequent destination are the groups showing the strongest interest in this -- 92% of Vashon-bound travelers are "Very Likely" or "Somewhat Likely" to support paved shoulders while 90% of Seattle-bound travelers are "Very Likely" or "Somewhat Likely" to do so.

Respondents were asked their likelihood of supporting construction of sidewalks near Sedgwick High School. Nearly nine out of ten (89%) of respondents favored this measure with 66% indicating that they are "Very Likely to Support" the approach and 23% indicating that they are "Somewhat Likely to Support. Support is strong regardless of frequency of travel, with 71% of less-frequent users indicating strong support and 65% of the most frequent users indicating strong support.

Proposed Strategies between Long Lake Road and Southworth Ferry Terminal	
Strategy	Mean Score
Providing Paved Shoulders as a Safety Measure	3.5
Sidewalks near Sedgwick High School as a Safety Measure	3.5
NOTE: Scores range from '1' to '4', with '1' "Very Unlikely to Support and '4' Very Likely to Support'	

Concerns specific to Ferry Traffic

Separate Tollbooth for Carpools and Public Transit - Opinions are divided regarding installation of a tollbooth specifically for carpools and public transit, with 27% "Very Likely to support", 19% "Somewhat Likely to support", 23% "Somewhat unlikely to support" and 31% "Very unlikely to support." When looked at by frequency of use of SR160, a majority (66%) of those traveling the route 3 or fewer times per week did not support the idea, with 38% "Very unlikely" to support the idea and 28% "Somewhat unlikely to support the idea. Slightly over half of the respondents (51%) using SR160 eight or more times a week also did not support the concept.

Passenger-Only Ferry - Respondents were asked to estimate the number of times that they would use a passenger-only ferry from Southworth to Seattle. While the majority (70%) indicated that they would use it less than once a week, 11% indicated that they would use it more than eight times per week. Not surprisingly, interest in frequent use of a passenger ferry is highest among those traveling to Seattle; 40% reported that they would use it more than eight times a week. Sixteen percent of those traveling SR160 more than eight times a week indicated that they would use the passenger-only ferry more than eight times a week.

Proposed Strategies to Address Ferry Traffic Issues	
Strategy	Mean Score
Separate Ferry Tollbooth for Carpools and Public Transit	2.4
Passenger-Only Ferry from Southworth to Seattle	3.5
NOTE: Scores range from '1' to '4', with '1' "Very Unlikely to Support and '4' Very Likely to Support'.	

Distance from Shuttle to Ferry - Across the board, respondents indicated that they could comfortably walk up to 500 feet from the ferry to a Park and Ride shuttle. Of all respondents, 89% indicated that 500 feet or less is a comfortable distance while 11% indicated that 50 feet is a comfortable distance. Support for the longer distance is somewhat less among those typically using public transit (75%) and significantly less for those who commute to South King County (36%).

Public Transit Use on SR 160

Public transit use along SR160 is low, with 90% of respondents indicating that they use public transit on SR160 less than once a week and 10% using it once a week or more. However, over half of those using it more than once a week are frequent users, using it more than five times weekly. Those with Bremerton, Gig Harbor and Seattle as typical destinations are slightly more likely than average to use the bus more than five times a week. People who typically use SR160 for shopping and other errands are less likely than commuters to use the bus frequently (4% vs. 10%).

A significant proportion (16%) of respondents indicated that they would use public transit more frequently if more bus runs were added. With regard to residence, support is strongest (21%) for those in the 98367 (Port Orchard) Zip Code area.

Responses also varied significantly by destination; 34% of those reporting Seattle as their typical destination would use transit more if runs were more frequent, followed by Vashon Island (25%), Bremerton (17%) and Port Orchard (14%). Of those showing Gig Harbor as their typical destination, only 7% reported that they would use transit more frequently if it were available.

Of those using SR160 primarily for work and school commutes, 21% reported that they would use transit more frequently if it were available.

Park and Ride Facilities

Respondents were asked to number, from 1 to 3, the Park and Ride improvements that they are most likely to support. The most popular is expansion of the Southworth Ferry Terminal with 22% having it as their first choice, 37% having it among their first two choices and 53% having it among their first three choices.

Support is also strong for a new Park and Ride lot near SR16 and SR160, with 26% having it as their first choice, 40% having it among their first two choices and 52% having it among their first three choices. Having a Park and Ride at this location is the first choice for 44% of those respondents with Gig Harbor as their typical destination, and for 40% of those respondents reporting South King County as their typical destination.

Top Three Improvements Most Likely to be Supported	
Expansion of the Southworth Park & Ride	53%
New Park & Ride near SR 16 and SR 160	52%
New Park & Ride Near SR 160 and Jackson	46%
Smaller Park & Ride Lots for Local Use	43%
Expansion of the Harper Church Park & Ride	32%
Expansion of the Mullenix Park & Ride	29%

Surprisingly, support for expansion of the Southworth Terminal Park and Ride is strongest, at 36%, among those using SR160 less than three times a week, and those typically using SR160 for purposes other than commute, shopping or errands (31%). Support is lowest among those travelers using SR160 eight or more times weekly (18%) and those using SR160 for commuting (18%)

One strategy not receiving as much support is construction of a Park and Ride lot near SR160 and Jackson Avenue. This is the first choice of 18% of respondents, the first or second choice of 33% of respondents and among the top three choices for 46% of respondents.

The strongest support for expansion of the Harper Church lot is among those with Seattle, Vashon, or South King County as their typical destination (at 51%, 56%, and 60% respectively in the 'top three')

Interest in expansion of the Mullenix Park and Ride lot, while not high overall, did receive the highest level of interest among travelers to Port Orchard, with 34% placing it in among their top three choices.

The Park and Ride strategies receiving the least support overall are expansion of the Harper Church Park and Ride (with 32% mentioning it as their first, second or third choice) and expansion of the Mullenix Park and Ride lot (with 29% placing it in their top three.)

The SR 160 Route Development Plan Steering Committee developed a set of objective statements and associated generic alternatives for issues such as Safety, Mobility, Transit, and Ferries. These statements were used to identify what the Steering Committee wanted to achieve with the SR 160 RDP. For each objective statement, the steering committee identified a list of generic alternatives. The objective statements were designed with the intention that they would be measurable.

The following Objective Statements and Generic Alternatives were developed and adopted by the SR 160 Steering Committee.

Transit and Ferries Mobility

Two objective statements were developed for Transit and Ferries Mobility.

Objective Statement

Improve the quality of connections between Transit and Ferries (time, convenience, safety, cost)

Generic Alternatives

- Facility Design
ADA connection, waiting areas, turning movements, grades, access, security, weather protection
- Pedestrian access
- Bicycle access
- No fares
- Additional P & R Lots
- Smaller buses to reach into neighborhoods with greater frequency

Objective Statement

Increase person through-put per lane (transit vehicle occupancy/ridership)

Generic Alternatives

- Priority treatments
 - Fare-free P & R System
 - Free parking at terminals for carpools
 - Increased Vanpools
 - Signal pre-emption
 - Priority lane treatment
- Increased Frequencies - All day vs. peaks
 - for passenger only ferries
 - for interdependence of modes
 - for all 3 alternative scenarios for ferries

Highway System and Network

Objective Statement

Maintain LOS C in Rural Areas

This statement coincides with the *WSDOT Highway System Plan*. The objective is measurable using Highway Capacity Manual software and v/c ratios.

Generic Alternatives

- Intersection improvements
- Accommodating linkage to ferries
- Incorporating freight study

Objective Statement

Mitigate Congestion at LOS D (negotiated E) in Urban Areas

Generic Alternatives

- Intersection, channelization, illumination
- Signal & interconnection
- Widening for peak HOV or both
- Median treatment (access mgt.)
- Driveway spacing, curbs, sidewalks
- Grade improvements
- Truck climbing lanes

Highway Safety

Objective Statement

Reduce the projected number and severity of accidents on SR 160

Generic Alternatives

- Transit turn-outs
- School standards/sidewalks
- Drainage/weather
- WSDOT standards (delineation/guardrail)
- Illumination
- Design speeds (solutions to vertical grades by design speed)
- Shoulders/guardrail
- Access Mgt. (same as mobility)
- I/S Channelization
- Signals
- Sight Distance
- Vertical alignment

CITY of Port Orchard

PORT ORCHARD
WASHINGTON 98366

12 May 1998

Mr. Chris Schroedel
WSDOT Olympic Region
Box 47440
Olympia, WA 98504-7440

RE: SR 160 Route Development Plan
Letter of Concurrence

Dear Sir,

The City of Port Orchard concurs with the concepts developed in the Route Development Plan for State Road 160.

The Route Development Plan identifies major needs to improve traffic flow and pedestrian access along this important route between the Southworth ferry and SR 16. By carefully evaluating the road, the varied land use patterns, and, most importantly, the public comments, the WSDOT staff has compiled a document which can assist in project development. This will be a good foundation for allowing the State of Washington to properly maintain and improve the road system during the next twenty years.

The City Council and I appreciate the hard work of the steering committee.

Sincerely,



Leslie J. Weatherill
Mayor

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FIRE DEPARTMENT
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FAX (360) 895-9152



KITSAP TRANSIT

April 20, 1998

Robert E. Jones
Transportation Planning Manager
WSDOT Olympic Region
P.O. Box 47440
Olympia, WA 98504-7440

RECEIVED

APR 22 1998

OLYMPIC REGION

Dear Mr. Jones,

We have completed our review of the WSDOT Olympic Region draft of the State Route Development Plan, and Kitsap Transit generally supports the findings, with the following exceptions and recommendations:

1. First, the comment that transit use is low on the corridor, where you have documented 10 percent usage to the ferry terminal, is incorrect. Average transit usage on any corridor in the Puget Sound region is at three percent and average usage for a suburban corridor is generally substantially less than three percent. You can see that a 10 percent usage level is actually quite high and deserves mention as such, particularly in light of the fact that usage was only one or two percent as late as two or three years ago. One of the problems here is that transit service, unless it is in the form of some huge infrastructure "event" such as rail, is relatively invisible compared to a stream of single-occupant vehicles. It would probably be equally surprising to a number of people in north Kitsap County that we are closing in on a 20 percent mode share at rush hour on Highway 305. Of course, it is in the form a dozen or so buses and a number of vanpools and carpools, so it doesn't stand out.
2. Of course, everyone would prefer to park at the ferry terminal. We all would also like reserved spaces. Public policy adopted at every level, from the ferry system to the county's comprehensive plan and including the Growth Management Act, essentially insist parking be remote to save valuable and environmentally sensitive property in the vicinity of the ferry terminals. We also keep data on and frequently respond to requests from the community and individual riders regarding park-and-ride locations; and our information does not at all square with the information you gathered.

We are, in fact, in the process of expanding the Harper Evangelical park-and-ride with purchase of the adjacent parcel to the west, based on a steady stream of requests from our customers and a steady overflow condition at this lot now. We place considerable greater faith in people who vote with their cars improperly parked than in polls when it comes to this sort of planning. Our strategy has been to develop a reasonable large and centrally place lot and then, as we can define the geographic origin of cars, begin to develop smaller coop lots at further distances from terminals. Generally speaking, this appears consistent with what you have suggested, with the exception of the first step being further expansion of Harper.

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3. We have considerable experience and have retained professional help on several occasions to conduct surveys on both park-and-ride lots and HOV treatments. There are many ways to pose these questions, and the most common way yields the expected but worthless answer that everyone would indeed like to park at the ferry terminal. Please feel free to ask us for assistance or for our collection of background body of information if you are obliged to go through this sort of process again.
4. In other respects, we support the SR 160 effort with the understanding that as the corridor is developed, signal pre-emption and queue-cuts will be included so that transit can maintain at least equivalent travel time through the corridor to the terminal.

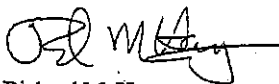
Included with this letter are a few comments from Doug Johnson regarding some specifics of the draft. In general, we very much support the work of the Steering Committee and DOT staff who have worked so diligently on this plan.

We specifically support the transit, pedestrian, and bike friendly parts of the plan. Safe walkways and bikeways are critical in reducing SOV usage of SR 160 and to encourage the use of transit. As WSF implements passenger-only service between Southworth and Seattle, transit use will need to increase to keep congestion to a reasonable level. The ability to access transit in a friendly and safe manner is critical to our success.

We strongly encourage the implementation of the raised median throughout the four lane portion of the highway. This median will make it easier and safer to cross the road. We also believe nice plantings along either side of the road and in the median will enhance the pedestrian friendly atmosphere of the road.

Thank you for your work on this effort and for allowing us to participate. I look forward to receiving the final document. We will continue to work with WSDOT to support the implementation of the plan.

Sincerely,



Richard M. Hayes
Executive Director



KITSAP TRANSIT

April 17, 1998

Robert E. Jones
Transportation Planning Manager
WSDOT Olympic Region
P.O. Box 47440
Olympia, WA 98504-7440

Dear Mr. Jones:

I have just a few minor corrections or comments to make on the "Draft" Highway 160 Route Development Plan. Overall, I think it's a good document which I am pleased to have helped shape by serving on the steering committee. The comments/corrections by page number are below.

- Page 3-4 1st paragraph, 1st line, should be "affects"
- Page 3-14 It is Sedgwick Junior High School, not High School. What about "School Walk Route Plans" for this school?
- Page 3-17 1st line, should be "effect"
- Page 3-18 The first line of the last bullet should say "The Plan also supports the development of a regional cooperative seamless fare collection system." (no capital letters) The participating organizations should include Sound Transit. Metro of King County Metro should be capitalized, I think. Instead of saying "Smart Card", it might be better to say "integrated fare system using contactless smart card technology."
- Page 3-19 We will not be "constructing" a park and ride at SR 160 and Jackson. We will be "developing" the church lot that is in the "vicinity" of the intersection into a park and ride lot.
- Page A-5 I think you should include a copy of the questionnaire used. This would help readers to see how the questions were asked so they can interpret the results.

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Phone: (360) 479-6962 FAX : (360) 377-7086 Website: www.kitsaptransit.org

• Page 2

April 17, 1998

- Page A-19 Several observations: Why would we have more frequent service to the ferry since we meet every ferry now until 7:30pm? Without schedules available when completing the survey, the typical SOV driver wouldn't know what service is available. Expanding the Southworth lot would only add to the congestion on SR 160 and not save VMT.

Sincerely,



Doug Johnson
Service Planner



**Washington State
Department of Transportation**

Sid Morrison
Secretary of Transportation

Olympic Region Headquarters
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Olympia, WA 98504-7440

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Fax (360) 357-2601

May 15, 1998

Mr. Richard M. Hayes
Executive Director
Kitsap Transit
234 South Wycoff
Bremerton, WA 98312-4199

RE: SR 160 Preliminary Final
Route Development Plan

Dear Mr. Hayes:

Thank you for your letter of support dated April 20, 1998 in which you provided comments on the *Preliminary Final SR 160 Route Development Plan*. We will incorporate your's and Doug Johnson's specific suggestions into the Plan, and offer the following responses to the issues you mention.

Regarding the Level of Transit use in the SR 160 Vicinity

With respect to your comments regarding the interpretation of corridor transit ridership percentage gathered through the public opinion survey, we have modified the text in *Section 3.3 Public Transit Service and Park and Ride Lots*, of the *SR 160 Route Development Plan*. That part of the document has been rewritten to state that transit use in the corridor is not *low*, but rather the fact that ten percent of travelers choosing transit as their main mode of transportation is indeed a high success rate.

The preliminary draft statement on *transit ridership* originates from our consultant report on the public opinion survey "*Transportation Survey Results State Route 160*". The *RDP* language will be amended as indicated above, with the necessary positive commentary. Please be aware that a copy of the consultant report will be included for informational purposes in *Appendix A* of the *SR 160 RDP*.

Regarding Park and Ride Lot Recommendations

We agree with your observation that given the choice, ferry users who travel SR 160 would prefer to park their cars near the Southworth Ferry Terminal, as many of the users have now grown accustomed to doing so. We have revised *Section 3.3.2 Park and Ride Lots*, to reflect Kitsap Transit's service strategies that you have clarified in your letter.

Mr. Richard M. Hayes
May 15, 1998
Page 2

Regarding the Public Opinion Survey

Thank you for offering further assistance and advice from Kitsap Transit on similar future public opinion polls that we may conduct. We do appreciate all of the comments and input provided by the Steering Committee members, including those from your agency, as we developed the public survey. The survey was an important part of our process, providing the Steering Committee with valued public perceptions, which overall validate the corridor development recommendations.

Regarding Transit Priority Treatments

We too recognize the need to ensure that the SR 160 corridor is developed in a way that accommodates existing and future transit services. Transit priority treatments such as queue cuts and signal pre-emption serve to help retain and attract transit customers. We have reinforced the narrative in the document, particularly in *Section 3.3* to clarify that the Steering Committee Recommendations parallel Kitsap Transit's service plans, and that the Kitsap Transit service plans align with the Objective Statements developed by the Steering Committee.

Thank you again for your remarks regarding the *SR 160 Preliminary Final Route Development Plan* and for allowing a high level of participation by your staff throughout the process. We believe Transit input and participation in these types of planning efforts is essential, and wish to recognize Wendy Clark, Doug Johnson and Pete Engel for their valued support. We anticipate distributing the final version of this Plan in the coming weeks and will provide several copies to your organization.

Sincerely,



Robert E. Jones
Transportation Planning Manager

REJ:cs

cc: Doug Johnson, Kitsap Transit
Bob Holcomb, WSDOT
Gary Richardson, WSDOT
Don Whitehouse, WSDOT



Colman Dock / Pier 52
801 Alaskan Way
Seattle, WA 98104-1487

Washington State
Department of Transportation

Sid Morrison, Secretary of Transportation
Paul L. Green, Director and Chief Executive Officer

February 18, 1998

Mr. Gary Farnsworth
Washington State Department of Transportation
P.O. Box 47440
Olympia, WA 98504-7440

Re: SR-160 Route Development Plan

Dear Mr. Farnsworth,

As the SR-160 Route Development Plan nears completion, I would like to take this opportunity to thank you for involving Washington State Ferries in the process of developing the Plan. SR-160 connects with the Southworth ferry terminal: its design treatment and capacity have a direct bearing on ferry riders. While there may be changes in the WSF System Plan - currently still in draft - we are pleased that your efforts seek to accommodate our needs, and that we can work together to provide an interconnected transport network.

Again, thank you for a good process and product. We look forward to working with you on any future updates.

Sincerely,

Celine K. Gihring, AICP
Planning Services Manager

cc: Ray Deardorf, AICP, Planning Director

CITY of Port Orchard

PORT ORCHARD
WASHINGTON 98366

30 May 1997

Mr Chris Schroedel
WSDOT, Olympic Region
Transportation Planning
Box 47440
Olympia, WA 98504-7440

RE: Route Development Plan
State Road 160

Dear Schroedel,

Reference is made to the draft Route Development Plan which was provided on 29 May 1997. The following comments are submitted for your consideration:

- ▶ The Vicinity Map has misspelled Sedgwick Road.
- ▶ The Steering Committee looked into the future and provided certain recommendations that may apply to SR 160 within the next twenty years. This is a planning document which allows a systematic approach to identifying future needs and financial impacts. Ideally, there should be a statement somewhere in the text to prevent future decisions from being based solely on what is or is not recommended. Actual decisions will be based upon engineering and jurisdictional policies.
- ▶ Table 1.3-1 indicates that Sedgwick is not a NHS highway. Kitsap County has indicated that it has applied for redesignation of the NHS status from SR 166 to SR 160. The City has not seen this application and does not necessarily agree with it. State Road 166 is an established truck route with comparatively mild grades to the fuel depot. A detailed comment will probably be made on the application when the City is given the opportunity in the decision process.
- ▶ Section 1.4: The City does not agree that WSDOT should close access to an existing public road in the name of "access management", without careful consideration by both the public and the local governments. Any public roads that lose their current access should be a subject

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of a specific public hearing. Once both sides of the issue are fully discussed, the appropriate agency would then make its decision, based on what was presented.

- ▶ Enclosed is a recent traffic study which considered the intersection of Bravo Terrace and SR 160. It is anticipated that the motel will provide the left turn refuge lane to mitigate its impact on the road. Its LOS is somewhat different than what Table 2.3-1 reports.
- ▶ As discussed at the meeting, the median should be landscaped in the commercial areas.
- ▶ The City disagrees that Geiger Road should lose its full access. This intersection should remain open to at least allow left turns, if a traffic signal is not designated. The controlling factor for this access is Geiger Road to the south of SR 166. If emergency vehicles originate from the City's Tremont station, the District's Main Station on Fircrest, or the District's Bethel Station, the median will prevent Fire and ambulance access to this portion of Geiger Road. An alternate route for this portion of Geiger Road is not feasible. The steep bluff to the west prevents access to Bravo Terrace, which should not be expanded anyway to handle potentially several hundred more homes. There is not any public right of way available for an extension to the east of this portion of Geiger Road. This intersection should be shown with a future left turn lane. Otherwise, the neighbors should be invited to discuss the matter.
- ▶ Some road geometry should be recommended to address the steep hills. If there are only two lanes, without an ability to pass a slow truck or car, people will not be satisfied.
- ▶ Bike paths or a combination of bike/walking paths should be specifically listed as future improvements.

The City looks forward to future participation in the process.

Respectfully,



Lawrence J. Curles, P.E.
City Engineer

cc Mr Chuck Shank (less encl)



**Washington State
Department of Transportation**

Sid Morrison
Secretary of Transportation

Olympic Region Headquarters

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July 2, 1997

Mr. Lawrence J. Curles
City Engineer
City of Port Orchard
Engineering-Building-Planning
216 Prospect Street
Port Orchard, WA 98366

RE: SR 160 Route Development Plan Final
Steering Committee Meeting Summary

Dear Mr. Curles:

Thank you for your active participation as a Steering Member in the route development planning for State Route 160. The fourth (and final) Committee meeting for this effort was held on May 29, 1997 at the Kitsap County Public Works Building, in Port Orchard. A summary of that meeting is enclosed for your information. The main purpose of the final steering meeting was to review the "rough" draft RDP. The Committee did an outstanding job of reviewing and providing comments on the draft document. My staff will be revising the draft over the next several weeks.

We look forward to producing a Route Development Plan that will be a tool for all of the concerned agencies, and result in better service to the traveling public. To realize this, several unfinished items in the process need to fall into place. Our process schedule to complete the Plan for SR 160 includes the following items (in likely order of occurrence):

- Allow opportunity for review and comment by WSDOT Executives
- Complete the "Draft" RDP (this includes revisions from our last meeting and from WSDOT Executives, results from the User Survey, and information to be provided by Kitsap Transit and WSF regarding their long range plans)
- The draft Final SR 160 RDP will then be mailed to Steering Members for their comments and agency consensus.
- This will allow the opportunity for Steering Members to comment by way of letter, stating their agency's standpoint with the final SR 160 RDP. WSDOT will allow two weeks for this review.
- Incorporate Agency letters into final RDP.

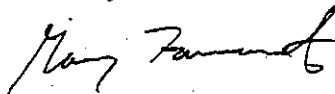
Mr. Lawrence J. Curles
July 2, 1997
Page 2

- Final RDP to Printers.
- Distribute Final RDP to all stakeholders.

The above items will carry us through this summer as we wait for long range plans from some of the Steering Members.

If you have any questions, please contact Chris Schroedel at (360) 357-2763. Thank you for your consideration.

Sincerely,



Gary Farnsworth, P.E.
Transportation Planning Engineer

GCF:cs
Enclosure

cc: Gary Richardson
Bob Holcomb

Appendix D Environmental and Roadside Preservation

This environmental screening was prepared by the Olympic Region Environmental and Hydraulic Services Office and provides an overview of existing environmental conditions and resulting concerns and/or limitations for the study area.

For the purposes of this *Route Development Plan*, the environmental screening does not consider environmental resources that could be impacted by unidentified proposed improvements to the Southworth Ferry Terminal.

Environmental Elements

1. Earth

The existing highway alignment traverses hilly terrain with numerous localized steep slopes. The roadway profile includes grades up to 16%, with some cuts and embankments approaching 100% slope.

The Soil Conservation Service *Soil Survey of Kitsap County Area, Washington*, General Soil Map, compiled in 1979, classifies the soils in the corridor as Alderwood-Harstine: nearly level to steep, moderately deep, moderately well drained soils; on uplands. A site visit, however, revealed several small localized wetlands and a few large wetland systems adjacent to the highway. These are discussed later in this Appendix.

Kitsap County has mapped a number of Geologically Hazardous Areas and Areas of Geologic Concern throughout the length of the corridor. Proposed projects involving cut or fill slope construction, or structure construction will require Kitsap County geotechnical review.

The primary impacts to the earth element due to proposed improvements are:

- Impervious surfaces will more than double from the SR 16 Interchange to the Long Road Intersection, and will substantially increase where shoulder widening or sidewalks are proposed along the remainder of the route;
- Erosion will occur due to construction related clearing and earthwork activities;
- Geologic hazards will be encountered intermittently, where improvements are proposed, throughout the highway corridor.

2. Air

This route is not located within a designated Air Quality Non-attainment Area. It is, however, within the jurisdiction of the Puget Sound Air Pollution Control Agency (PSAPCA). Besides Kitsap County, PSAPCA also includes Snohomish, King and Pierce Counties, which are Nonattainment or Maintenance Areas.

These designations require the proposed improvements be included in the regional air quality conformity modeling. In addition, if the county becomes noncompliant, the design phase of project development for mobility or capacity improvement proposals, requires a project level conformity analysis be conducted to assure compliance with the standards then in effect. An improvement in Level of Service will usually result in an improvement to air quality; an increase in traffic volumes will increase pollutants discharged to the air.

It is worth noting here that at the time of this report U.S. EPA is reconsidering the current National Ambient Air Quality Standards (NAAQS). New standards, if enacted, will be more stringent than those in place.

3. Aquatic Resources

The following mapped waterbodies cross the SR 160 corridor:

Waterbody	Mile Post	WRIA*
Salmonberry Creek	2.31	15.0188
Curley Creek	3.80	15.0185
Tributary to Curley Creek	4.48	15.0186

* = Water Resource Inventory Area

Salmonberry Creek and the tributary to Curley Creek cross under the highway in culverts, while Curley Creek is crossed with a small bridge. Expansion of facilities may require extension or replacement of culverts and bridges. There are many small drainages that cross the highway that are not mapped as fisheries streams. See Fish and Wildlife Section 5 for information on the fisheries use of streams in the corridor.

Possible wetland areas were identified throughout the route corridor as shown below.

Wetland Area	Start MP Right (south)	End MP Right (south)	Start MP Left (north)	End MP Left (north)
1	0.84	0.87	0.86	0.91
2	---	---	1.10	1.17
3	2.18	2.42	2.18	2.46
4	2.96	2.99	2.97	3.00
5	3.21	3.23	3.21	3.23
6	3.26	3.30	3.27	3.29
7	3.50	3.54	---	---
8	---	---	3.67	3.70
9	---	---	3.72	3.77
10	3.72	3.75	---	---
11	3.78	3.83	---	---
12	---	---	3.80	3.98
13	3.87	3.97	---	---
14	4.24	4.27	---	---
15	4.37	4.40	4.35	4.40
16	4.58	4.60	---	---
17	---	---	4.62	4.68
18	5.08	5.14	---	---
19	5.32	5.37	---	---
20	---	---	5.94	5.96
21	5.96	5.99	---	---
22	6.05	6.07	6.06	6.08
23	6.34	6.36	6.34	6.36
24	6.50	6.57	6.51	6.57
25	---	---	6.93	7.00

Wetland identification is based on visual observation of vegetation and hydrology. When sections of the route are funded and scheduled for project development, detailed investigations will be done to determine the actual presence and extent of wetlands and other aquatic resources.

Due to the potential for significant wetland impacts from road widening, a concise purpose and need statement will need to be developed. Also, an alternatives analysis describing a full range of reasonable alternatives, including non-widening alternative, will need to be prepared.

The designated 100 year flood plain associated with Curley Creek at the SR 160 crossing is apparently constrained within the channel. If proposed improvements are designed with no channel restrictions there will be no impact to the 100 year flood plain.

From milepost 4.6 to milepost 5.8 (Banner Road vicinity) the highway corridor crosses a county designated Critical Aquifer Recharge Area. Any proposal that generates additional stormwater runoff, or changes existing runoff patterns, will require compliance with Kitsap County Critical Area Ordinance regulations.

Stormwater runoff quality and quantity treatments will be developed for any proposed facility expansion in accordance with the WSDOT *Highway Runoff Manual*, Ecology's *Storm Water Management Manual for the Puget Sound Basin* and any applicable regulations at the time of project design.

The primary impacts to the water element due to proposed improvements are:

- Potential for degraded quality and increased quantity of highway generated stormwater runoff affecting receiving bodies of water;
- Stream crossing structure widening could have temporary and permanent impacts;
- Facility expansion will result in wetland impacts.

4. Vegetation

The plant species in and adjacent to SR 160 are reflective of the land use in the corridor. The land use is primarily rural residential with occasional retail locations and hobby farms. It appears that residential development is continuing to expand along the route.

Typical vegetation in the route includes red alder, douglas fir, ornamental trees and shrubs, cedar, vine maple, big leaf maple, madrona, black locust, willow, scotch broom, spiraea, salmonberry, blackberry, pasture grasses, turf grasses, reed canary grass, skunkcabbage, trillium, horsetail, cattail, nettle, and soft rush.

5. Fish and Wildlife

Habitat in the corridor is available for a variety of species including songbirds, hawks, pheasant, amphibians, small mammals, deer, beaver, anadromous fish, and resident fish species.

Development within the corridor is probably resulting in the loss of those species that are not tolerant of human activity or that have large home ranges. This cumulative loss of species is currently occurring and will continue to occur irrespective of roadway improvements.

Roadway designs should carefully consider the impacts of design features that inhibit wildlife passage across the road such as noise and median barriers as well as impassable fencing.

Curley Creek supports Chinook, Coho, and chum salmon, steelhead, cutthroat trout, and other residential species. Salmonberry Creek supports chum, coho, steelhead, cutthroat trout, and other resident species. The tributary to Curley Creek probably does not support anadromous species and may not support resident species such as trout in the vicinity of the road.

Road widening will require culvert extension or replacement. The Salmonberry Creek culvert currently has a one foot drop at the end of the culvert. This drop may or may not be a fish passage problem. When the road is upgraded, the culvert should be designed to facilitate fish passage.

There is potential for threatened and endangered species to be present in, or adjacent to, the route. When sections of the route are funded and scheduled for project development, a Biological Assessment (BA) will be prepared (if required). A BA documents (1) the presence of endangered/threatened species; (2) the impacts to those species or their habitats; (3) the mitigation measures necessary to avoid or minimize impacts to those species.

6. Energy and Natural Resources

The only permanent energy requirements due to proposed improvements will be for electricity to power intersection illumination and signalization systems.

7. Environmental Health

There is a slight possibility that the proposed highway widening could impact underground fuel storage tanks associated with operating gas stations. Known locations are:

- Milepost 0.1 right, Texaco;
- Milepost 0.8 left, Chevron (just before Bethel Road);
- Milepost 0.8 left, BP (just after Bethel Road).

In addition, Department of Ecology records indicate a leaking underground storage tank was discovered in 1990 at the *former* Bethel Texaco at the intersection of SR 160 and Bethel Road. Cleanup action commenced in 1995; the extent of contamination and success of the cleanup efforts are not known.

Initial Site Assessments (ISA) will be conducted prior to any right of way purchase. The ISA's will identify where potential contaminants could exist, and will recommend further detailed studies or clean-up plans as required.

Highway capacity improvements in the form of added through lanes have the potential to increase noise impacts to sensitive receptors above acceptable levels. These projects must provide noise impact analyses, and must consider practicable abatement treatments. Limited access facilities, with widely spaced access points, offer the best mitigation possibilities.

Local governments are encouraged to regulate land developments such that noise sensitive land uses be prohibited adjacent to state highways and that developments near highways be planned, designed and constructed in such a way that noise impacts are minimized.

8. Land and Shoreline Use

Land use and zoning are discussed in Section 2.1 of this Plan. The only agricultural uses noted adjacent to the highway were hobby farm activities.

The only shoreline environment designations within the SR 160 corridor, according to the *Shoreline Management Master Program* for Kitsap County is:

- Curly Creek, milepost 3.82, Rural Conservancy
- Puget Sound, near the Southworth Ferry Terminal, Rural, Conservancy

Any work within these jurisdictional shorelines (within 200' of the Ordinary High Water Line for streams and rivers, within 200' of Mean Higher High

Water for tidal waters, or within the 100 year flood plain associated with the waterbody) will require compliance with the Shoreline Development Regulations, and a Shoreline Substantial Development Permit, Variance, or Exemption.

9. Housing

The existing SR 160 right of way will not accommodate the proposed widening from Milepost 0.0 to milepost 2.55, vicinity Long Lake Road; construction of these improvements will result in impacts to properties, dwellings and businesses adjacent to the highway. Proposed sidewalks, shoulder widening and transit pullouts could result in minor right of way impacts throughout the remainder of the route, however, no displacements are anticipated. For this Plan, the level of design detail required to quantify these impacts is not available. As growth and development continues along the corridor, the potential for impacts due to facility expansion will increase.

Again, WSDOT encourages local governments to regulate development immediately adjacent to state highways to minimize impacts resulting from these anticipated expansions.

10. Aesthetics

The roadside character of the existing two lane highway is rural in nature. While not designated as a Scenic or Recreational Highway the visual and aesthetic impacts resulting from establishing a multi-lane divided highway are undeniable.

These impacts can be lessened by implementing roadside treatments outlined in the *WSDOT Roadside Classification Plan*.

11. Lighting and Glare

The only light produced by proposals in this Plan will be from traffic signals, installed at selected intersections, operating day and night; and by highway illumination systems, installed at all channelized or signalized intersections, operating at night.

12. Recreation

SR 160 is used for some limited local recreational travel. Long Lake, south of the highway at milepost 2.5 (Long Lake Road), includes a County Park, playground, swimming, a public boat dock and a nearby golf course.

The proposed improvements outlined in this Plan will have no impact on these recreation opportunities.

13. Historic and Cultural Preservation

A search of Federal, State and County records at the Office of Archaeological and Historic Preservation found no listed historical sites within the SR 160 corridor. No potentially eligible structures were noted during a site visit.

The Sedgwick Cemetery, milepost 5.6 right could be eligible for listing. Proposed improvements in this area could easily be designed to avoid impacting the site.

Right of way purchase or proposed earthwork activities outside the existing roadway prism will require an Archaeological/Cultural Resource Survey.

14. Transportation

Existing local streets and state highways accessing SR 160 are described in Chapter 1. Transit facilities and Park and Ride proposals are discussed in Chapter 3.

The primary transportation impact will be to travel patterns resulting from the proposed median treatments, limiting crossing opportunities to selected intersections. Public services such as school busses and mail carriers, as well as local freight deliveries, local residents and local business employees will need to adjust.

15. Public Service

The SR 160 roadway improvements proposed in this *Route Development Plan* will not result in an increased need for public services.

Public services, however, such as transit and ferry travel, are very important elements to the Steering Committee and this *RDP* does address recommendations for improved public transportation services.

16. Utilities

No new utilities are required by these proposals. Electric power, already available throughout the corridor, will be required for new traffic signal and highway illumination installations.

Utilities and other public facilities that could be impacted by proposed improvements include:

- Stormwater treatment pond, and a sanitary sewer pump station, at the NW quadrant of the SR 16 I/C;
- Electric substation, vicinity milepost 2.8 right;
- Kitsap County stormwater treatment pond, vicinity milepost 5.1 right;
- Water supply wells and above ground steel reservoir, vicinity milepost 5.2 right;
- Sedgwick Jr. High School, vicinity milepost 5.5 left.

Appendix E

Highway Access Management Law

This Appendix provides selected text from WAC 468-52 for informational purposes as it relates to highway access management. Due to volume, the complete chapter is not presented. For additional information, please refer to other related chapters such as WAC 468-51 and RCW 47.50 (not reproduced in this Appendix).

WAC 468-52-010 Purpose.

This chapter is adopted in accordance with chapter 47.50 RCW for the implementation of an access control classification system and standards for the regulation and control of vehicular ingress to, and egress from the state highway system.

WAC 468-52-020 Definitions.

For the purposes of this chapter, the following definitions of the terms shall apply unless the context clearly indicates otherwise:

"Conforming connection" means a connection that meets current department location, spacing, and design criteria.

"Connection" means approaches, driveways, turnouts, or other means of providing for the right of access to or from controlled access facilities on the state highway system.

"Connection permit" means a written authorization given by the department for a specifically designed connection to the state highway system at a specific location for a specific type and intensity of property use and specific volume of traffic for the proposed connection, based on the final stage of proposed development of the applicant's property. The actual form used for this authorization will be determined by the department.

"Controlled access facility" means a transportation facility (excluding limited access facilities as defined in chapter 47.52 RCW) to which access is regulated by the governmental entity having jurisdiction over the facility. Owners or occupants of abutting lands and other persons have a right of access to and from such facility at such points only and in such manner as may be determined by the governmental entity.

"Corner clearance" means the distance from an intersection of a public or private road to the nearest connection along a controlled access facility. This distance is measured from the closest edge of the traveled way of the intersecting road to the closest edge of the traveled way of the connection measured along the traveled way (through lanes).

"Department" means the Washington state department of transportation.

"Governmental entity" means, for the purpose of this chapter, a unit of local government or officially designated transportation authority that has the responsibility for planning, construction, operation, maintenance, or jurisdiction over transportation facilities.

"Intersection" means an at grade connection on a state highway with a road or street duly established as a public road or public street by the local governmental entity.

"Joint use connection" means a single connection point that serves as a connection to more than one property or development, including those in different ownerships or in which access rights are provided in the legal descriptions.

"Limited access facility" means a highway or street especially designed or designated for through traffic, and over, from, or to which owners or occupants of abutting land, or other persons have no right or easement, or only a limited right or easement of access, light, view, or air by reason of the fact that their property abuts upon such limited access facility, or for any other reason to accomplish the purpose of a limited access facility.

"Nonconforming connection" means a connection not meeting current department location,

spacing, or design criteria.

"Permit" means written approval issued by the department, subject to conditions stated therein, authorizing construction, reconstruction, maintenance, or reclassification of a state highway connection and associated traffic control devices on or to the department's right of way.

"Permitting authority" means the department or any county, municipality, or transportation authority authorized to regulate access to their respective transportation systems.

"State highway system" means all roads, streets, and highways designated as state routes pursuant to chapter 47.17 RCW.

WAC 468-52-030 General.

The connection and intersection spacing distances specified in this chapter are minimums. Greater distances may be required by the department on individual permits issued in accordance with chapter 468-51 WAC to provide desirable traffic operational and safety characteristics. If greater distances are required, the department will document, as part of the response to a connection permit application pursuant to chapter 468-51 WAC, the reasons, based on traffic engineering principles, that such greater distances are required. Nonconforming permits may be issued in accordance with chapter 468-51 WAC allowing less than minimum spacing where no other reasonable access exists, or where it can be substantiated by a traffic analysis in the permit application that allowing less than the minimum spacing would not adversely affect the desired function of the state highway in accordance with the assigned access classification, and would not adversely affect the safety or operation of the state highway.

WAC 468-52-040 Access control classification system and standards.

This section provides an access control classification system consisting of five classes. The functional characteristics and the access control design standards for each class are described. The classes are arranged from the most restrictive, class one, to the least restrictive, class five. This access control classification system does not include highways or portions thereof that have been established as limited access highways pursuant to chapter 47.52 RCW. For state highways that are planned for the establishment of limited access control in accordance with the Master Plan for Limited Access Highways, an access control classification will be assigned to each highway segment to remain in effect until such time that the facility is established as a limited access facility.

On all access classes, property access shall be located and designed to minimize interference with transit facilities and/or high occupancy vehicle (HOV) facilities on state highways where such facilities exist or where such facilities are proposed in a state, regional, metropolitan, or local transportation plan. In such cases, if reasonable access is available from the general street system, primary property access shall be provided from the general street system rather than from the state highway.

(1) Class one.

(a) Functional characteristics:

These highways have the capacity for safe and efficient high speed and/or high volume traffic movements, providing for interstate, interregional, and intercity travel needs and some intracity travel needs. Service to abutting land is subordinate to providing service to major traffic movements. Highways in this class are typically distinguished by a highly controlled, limited number of public and private connections, restrictive medians with limited median openings on multilane facilities, and infrequent traffic signals.

(b) Access control design standards:

(i) It is the intent that the design of class one highways be generally capable of achieving a posted speed limit of fifty to fifty-five mph. Spacing of intersecting streets, roads, and highways shall be planned with a minimum spacing of one mile. One-half mile spacing may be permitted, but only when no reasonable alternative access exists.

(ii) Private direct access to the state highway shall not be permitted except when the property has no other reasonable access to the general street system. The following standards will be applied when direct access must be provided:

(A) The access connection shall continue until such time that other reasonable access to a highway with a less restrictive access control classification or access to the general street system becomes available and is permitted.

(B) The minimum distance to another public or private access connection shall be one thousand three hundred twenty feet. Nonconforming connection permits may be issued to provide access to parcels whose highway frontage, topography, or location would otherwise preclude issuance of a conforming connection permit. No more than one connection shall be provided to an individual parcel or to contiguous parcels under the same ownership.

(C) All private direct access shall be for right turns only on multilane facilities, unless special conditions warrant and are documented by a traffic analysis in the connection permit application, signed and sealed by a qualified professional engineer, registered in accordance with chapter 18.43 RCW.

(D) No additional access connections to the state highway shall be provided for newly created parcels resulting from property divisions. All access for such parcels shall be provided by internal road networks. Access to the state highway will be at existing permitted connection locations or at revised connection locations, as conditions warrant.

(iii) A restrictive median shall be provided on multilane facilities to separate opposing traffic movements and to prevent unauthorized turning movements.

(2) Class two.

(a) Functional characteristics:

These highways have the capacity for medium to high speeds and medium to high volume traffic movements over medium and long distances in a safe and efficient manner, providing for interregional, intercity, and intracity travel needs. Direct access service to abutting land is subordinate to providing service to traffic movement. Highways in this class are typically distinguished by existing or planned restrictive medians, where multilane facilities are warranted, and minimum distances between public and private connections.

(b) Access control design standards:

(i) It is the intent that the design of class two highways be generally capable of achieving a posted speed limit of thirty-five to fifty mph in urbanized areas and forty-five to fifty-five mph in rural areas. Spacing of intersecting streets, roads, and highways shall be planned with a minimum spacing of one-half mile. Less than one-half mile intersection spacing may be permitted, but only when no reasonable alternative access exists. In urban areas and developing areas where higher volumes are present or growth that will require signalization is expected in the foreseeable future, it is imperative that the location of any public access be planned carefully to ensure adequate signal progression. Addition of all new connections, public or private, that may require signalization will require an engineering analysis signed and sealed by a qualified professional engineer, registered in accordance with chapter 18.43 RCW.

(ii) Private direct access to the state highway system shall be permitted only when the property has no other reasonable access to the general street system or if access to the general street system would cause traffic operational conditions or safety concerns unacceptable to the local governmental entity. When direct access must be provided, the following conditions shall apply:

(A) The access connection shall continue until such time that other reasonable access to a highway with a less restrictive access control classification or acceptable access to the general street system becomes available and is permitted.

(B) The minimum distance to another public or private access connection shall be six hundred sixty feet. Nonconforming connection permits may be issued to provide access to parcels whose highway frontage, topography, or location would otherwise preclude issuance of a conforming connection permit. No more than one connection shall be provided to an individual parcel or to contiguous parcels under the same ownership unless the highway frontage exceeds one thousand three hundred twenty feet and it can be shown that the additional access would not adversely affect the desired function of the state highway in accordance with the assigned access classification, and would not adversely affect the safety or operation of the state highway.

(C) All private direct access shall be for right turns only on multilane facilities, unless special conditions warrant and are documented by a traffic analysis in the connection permit application, signed and sealed by a qualified professional engineer, registered in accordance with chapter 18.43 RCW.

(D) No additional access connections to the state highway shall be provided for newly created parcels resulting from property divisions. All access for such parcels shall be provided by internal road networks. Access to the state highway will be at existing permitted connection locations or at revised connection locations, as conditions warrant.

(iii) On multilane facilities a restrictive median shall be provided to separate opposing traffic movements and to prevent unauthorized turning movements.

(3) Class three.

(a) Functional characteristics:

These highways have the capacity for moderate travel speeds and moderate traffic volumes for medium and short travel distances providing for intercity, intracity, and intercommunity travel needs. There is a reasonable balance between

direct access and mobility needs for highways in this class. This class is to be used primarily where the existing level of development of the adjoining land is less intensive than maximum buildout and where the probability of significant land use change and increased traffic demand is high. Highways in this class are typically distinguished by planned restrictive medians, where multilane facilities are warranted, and minimum distances between public and private connections. Two-way left-turn-lanes may be utilized where special conditions warrant. Development of properties with internal road networks and joint access connections are encouraged.

(b) Access control design standards:

(i) It is the intent that the design of class three highways be generally capable of achieving a posted speed limit of thirty to forty mph in urbanized areas and forty-five to fifty-five mph in rural areas. In rural areas, spacing of intersecting streets, roads, and highways shall be planned with a minimum spacing of one-half mile. Less than one-half mile intersection spacing may be permitted, but only when no reasonable alternative access exists. In urban areas and developing areas where higher volumes are present or growth that will require signalization is expected in the foreseeable future, it is imperative that the location of any public access be planned carefully to ensure adequate signal progression. Where feasible, major intersecting roadways that may ultimately require signalization shall be planned with a minimum of one-half mile spacing. Addition of all new connections, public or private, that may require signalization will require an engineering analysis signed and sealed by a qualified professional engineer, registered in accordance with chapter 18.43 RCW.

(ii) Private direct access:

(A) No more than one access shall be provided to an individual parcel or to contiguous parcels under the same ownership unless it can be shown that additional access points would not adversely affect the desired function of the state highway in accordance with the assigned access classification, and would not adversely affect the safety or operation, of the state highway.

(B) The minimum distance to another public or private access connection shall be three hundred thirty feet. Nonconforming connection permits may be issued to provide access to parcels whose highway frontage, topography, or location would otherwise preclude issuance of a conforming connection permit.

(4) Class four.

(a) Functional characteristics:

These highways have the capacity for moderate travel speeds and moderate traffic volumes for medium and short travel distances providing for intercity, intracity, and intercommunity travel needs. There is a reasonable balance between direct access and mobility needs for highways in this class. This class is to be used primarily where the existing level of development of the adjoining land is more intensive and where the probability of major land use changes is less probable than on class three highway segments. Highways in this class are typically distinguished by existing or planned nonrestrictive medians. Restrictive medians may be used as operational conditions warrant to mitigate turning, weaving, and crossing conflicts. Minimum connection spacing standards should be applied if adjoining properties are redeveloped.

(b) Access control design standards:

(i) It is the intent that the design of class four highways be generally capable of achieving a posted speed limit of thirty to thirty-five mph in urbanized areas and thirty-five to forty-five mph in rural areas. In rural areas, spacing of intersecting streets, roads, and highways shall be planned with a minimum spacing of one-half mile. Less than one-half mile intersection spacing may be permitted, but only when no reasonable alternative access exists. In urban areas and developing areas where higher volumes are present or growth that will require signalization is expected in the foreseeable future, it is imperative that the location of any public access be planned carefully to ensure adequate signal progression. Where feasible, major intersecting roadways that may ultimately require signalization shall be planned with a minimum of one-half mile spacing. Addition of all new connections, public or private, that may require signalization will require an engineering analysis signed and sealed by a qualified professional engineer, registered in accordance with chapter 18.43 RCW.

(ii) Private direct access:

(A) No more than one access shall be provided to an individual parcel or to contiguous parcels under the same ownership unless it can be shown that additional access points would not adversely affect the desired function of the state highway in accordance with the assigned access classification, and would not adversely affect the safety or operation of the state highway.

(B) The minimum distance to another public or private access connection shall be two hundred fifty feet. Nonconforming connection permits may be issued to provide access to parcels whose highway frontage, topography, or location would otherwise preclude issuance of a conforming connection permit.

(5) Class five.

(a) Functional characteristics:

These highways have the capacity for moderate travel speeds and moderate traffic volumes for primarily short travel distances providing for intracity and intracommunity trips primarily for access to state highways of higher classification. Access needs may generally be higher than the need for through traffic mobility without compromising the public health, welfare, or safety. These highways will generally have nonrestrictive medians.

(b) Access control design standards:

(i) It is the intent that the design of class five highways be capable of achieving a posted speed limit of twenty-five to thirty-five mph. In rural areas, spacing of intersecting streets, roads, and highways shall be planned with a minimum spacing of one-quarter mile. Less than one-quarter mile spacing may be permitted where no reasonable alternative exists. In urban areas and developing areas where higher volumes are present or growth that will require signalization is expected in the foreseeable future, it is imperative that the location of any public access be planned carefully to ensure adequate signal progression. Where feasible, major intersecting roadways that may ultimately require signalization shall be planned with a minimum of one-quarter mile spacing. Addition of all new connections, public or private, that may require signalization will require an engineering analysis signed and sealed by a qualified professional engineer, registered in accordance with chapter 18.43 RCW.

(ii) Private direct access:

(A) No more than one access shall be provided to an individual parcel or to contiguous parcels under the same ownership unless it can be shown that additional access points would not adversely affect the desired function of the state highway in accordance with the assigned access classification, and would not adversely affect the safety or operation of the state highway.

(B) The minimum distance to another public or private access connection shall be one hundred twenty-five feet. Nonconforming connection permits may be issued to provide access to parcels whose highway frontage, topography, or location would otherwise preclude issuance of a conforming connection permit.

(6) Interim standards. The interim standards set forth in this section shall be effective for all segments of the state highway system, except where access rights have been previously acquired pursuant to chapter 47.52 RCW, until superseded by an adopted access control classification as defined in this chapter. These interim standards are mandatory for all state highways where the department is the permitting authority, and are advisory for city streets designated as state highways pursuant to chapter 47.24 RCW where incorporated cities or towns are the permitting authority. Permit applications received after adoption of this chapter, but before the classification of a highway segment is adopted, shall be reviewed for consistency with the interim standards. After a highway segment has been classified pursuant to this chapter, the standards described for that particular class shall supersede the interim standards for the classified highway segment.

(7) **Corner clearance.** Corner clearances for connections shall meet or exceed the minimum connection spacing requirements of the interim standards, or of the applicable access class where the highway segment has been assigned a classification. A single connection may be placed closer to the intersection, pursuant to the permit application process specified in chapter 468-51 WAC, and in accordance with the following criteria:

(a) If, due to property size, corner clearance standards of this chapter cannot be met, and where joint access meeting or exceeding the minimum corner clearance standards cannot be obtained, or is determined by the department to be not feasible because of conflicting land use or conflicting traffic volumes or operational characteristics, then the following minimum corner clearance criteria may be used:

*For Access Class 5 and for speeds less than thirty-five mph, one hundred twenty-five feet may be used.

(b) In cases where connections are permitted under the above criteria, the permit issued pursuant to chapter 468-51 WAC shall contain the following additional conditions:

(i) There shall be no more than one connection per property frontage on the state highway.

(ii) When joint or alternate access meeting or exceeding the minimum corner clearance standards becomes available, the permittee will close the permitted connection, unless the permittee shows to the department's satisfaction that such closure is not feasible.

Activity Center - A major concentration of employment and commercial activity, which may be found in suburban areas as well as in the downtown areas.

Alignment - The specific path a highway will take between two designated points within a corridor.

The **Americans with Disabilities Act of 1990 (ADA)** - mandates changes in building code, transportation services and facilities, and hiring practices to prevent discrimination against persons with disabilities.

Average Daily Traffic (ADT) - The average number of vehicles that passes a specified point during a 24 hour period.

Capacity - Maximum number of vehicles (vehicular capacity) or persons (person capacity) that can pass over a given section of roadway in one or both directions during a given period of time under a prevailing environmental, roadway, and roadway user conditions, usually expressed as vehicles per hour or persons per hour.

Channelization - The separation or regulation of conflicting traffic movements into definite paths of travel by use of pavement markings, raised islands or other means.

Collector - A collector provides the primary access to a minor arterial for one or more neighborhoods or non-residential areas. Collectors distribute trips to and from the arterial system. They provide a limited amount of travel through neighborhoods and non-residential areas which originates and terminates externally. Collectors provide direct connections to local roads and minor collectors. They provide collection and distribution routes for public transit systems. The basic trip length is generally between 2 and 10 miles.

Comprehensive Plan - Developed by town, city, and county jurisdictions to manage their future growth and economy while protecting the environment. Individual elements of most comprehensive plans include; Land Use, Transportation, Housing, Capitol Facilities, Utilities, Economic Development, and the Environment.

Corridor - One of several general paths a highway can take to satisfy the route requirements and has one or more specific alignment alternatives. A corridor can include, as a whole or in part, any existing state highway facility, county highway facility, city street, new alignments or any combination of these

Directional Design Hour Volume (DDHV) - The traffic volume for the design hour in the peak direction of flow, usually a forecast of the relevant peak hour volume, in vehicles per hour.

Design Hour Volume (DHV) - The traffic volume for the design hour in vehicles per hour.

Design Speed - The maximum safe speed when conditions are so favorable that the design features of the highway govern.

Design Year - The year for which a project is designed. In transportation projects the design year is typically taken to be 20 years from the time of construction. Using the traffic volumes estimated in the future allows engineers to design the project to meet those predicted needs. In effect the design life of the project is taken to be 20 years. What actually happens in the future may differ from predictions.

Divided Highway - A highway with separated roadbeds for traffic in opposing directions.

Grade - The rate of ascent or descent of a roadway, expressed as a percent; the change in roadway elevation per unit of horizontal length.

Horizontal Alignment - The straight lines (tangents) and curves of the road.

High Occupancy Vehicle (HOV) - High Occupancy Vehicle. Typically any vehicle that carries more than one person which is called an SOV (Single Occupant Vehicle). HOV lanes are typically reserved for transit, and vehicles carrying 2 or more persons, sometimes 3 or more persons. Motorcycles are also allowed to use the HOV lanes in the State of Washington.

High Occupancy Vehicle Lane - High Occupancy Vehicle Lane. Reserved for use by high occupancy vehicles (HOVs) either all day or during specified periods (e.g. during the rush hours). An HOV for the purpose of the lane may be a bus, carpool, vanpool or motorcycle.

Intersection Improvements - provide obstruction-free sight triangles (often achieved through slope flattening, selective clearing or both), eliminate skews where possible, separate grades where possible, illumination and other enhancements to improve the safety characteristics of the intersection which may have the desirable collateral effect of improving the transportation characteristics of the intersection.

Lane - A portion of street or highway, usually indicated by pavement markings, that is intended for one line of vehicles.

Level of Service (LOS) - The level of service is a measure of how well a transportation facility is serving the volume of vehicles using it. A descriptive measure of the quality and quantity of transportation service provided to users. Quantifiable characteristics such as travel time, travel cost, number of transfers, etc. are considered.

Median - The portion of a divided highway separating the traveled ways for traffic in opposite directions.

Metropolitan Planning Organization (MPO) - Metropolitan Planning Organization, have been around since the mid 1960s, following the 1962 Federal Highway Act which first formally legislated cooperation between state DOTs and local communities in urban areas. However ISTEA greatly expanded MPO authority. MPOs now have the authority to allocate federal funds coming into their regions through the Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) Program. The MPO is responsible for regional transportation planning in an urbanized area. Members are designated by the governor and local elected officials.

Milepost (MP) - Sequential number, in designated direction of travel, of 1/100 mile increments along a State Route.

Minor Arterial - Minor arterials provide access to the principal arterial and freeway system. They provide a lower level of travel mobility than principal arterials to major communities within the County. They provide primary access to or through communities of high density residential, commercial or retail, or industrial land areas. They provide access to abutting properties at pre-determined locations. Trip length on minor arterials generally exceed five miles. Minor arterials provide routes for public transit systems between major communities within the County.

Mobility - Capable of moving from one place to another. As congestion increases, mobility decreases.

Objectives - Specific, measurable statements related to the attainment of goals.

Office of Urban Mobility (OUM)

Park and Ride Lot - A transit, carpool, and/or vanpool facility where people can park their auto and then ride transit or join a carpool or vanpool to work.

Preemption of Signals - A system whereby specific vehicles, such as busses, are given preference at traffic signals in order to speed their movement.

Queue - A line of people or vehicles.

Regional Transportation Planning Organization - Under the Growth Management Act local agencies are required to work together look at regional transportation issues. This requirement led to the development of Regional Transportation Planning Organizations (RTPOs). The Peninsula RTPO covers the northern part of the Olympic Peninsula and includes representatives from 4 counties, 9 cities, 4 transit agencies, 10 tribal nations, 4 port districts and 4 major employers. The membership consists of elected officials, planners and public works directors, general managers and corporate CEOs. The Department of Transportation provides staff and support for the PRTPO.

Revised Code of Washington (RCW)

Route Development Plan (RDP)

Right of Way - Land owned by the state for the purposes of highway and transportation facility construction.

Sight Distance - Minimum distance necessary for a driver to see conflicting traffic and take the action necessary to avoid colliding with that traffic.

Single Occupant Vehicle (SOV) - a vehicle carrying only the driver.

State Environmental Protection Act (SEPA)

State Route (SR)

Superelevation Rate - The rate of rise in cross section of the finished surface of a roadway on a curve, measured from the lowest or inside edge to the highest or outside edge.

System Plan - Provide service objectives and action strategies for maintaining, operating, preserving, and improving our state highways.

Transit - Passenger transportation that is available to any person who pays a prescribed fare. Operating on established schedules along fixed routes and designated stops, it is designed to move relatively large groups of people at one time.

Transit Center - (transit station) A mode transfer facility serving transit buses and other modes such as automobiles, bicycles, and pedestrians.

Travel Demand Management (TDM) - refers to the policies, programs, and actions implemented to increase the use of High Occupancy Vehicles (public transit, carpooling, and vanpooling) and non-motorized transportation, and/or spread the timing of travel to less congested time periods through alternate work hour programs.

Transportation System Management (TSM) - improves the flow of traffic through traffic signal synchronization, freeway on-ramp signals, the construction of high-occupancy-vehicle (HOV) lanes, left turn restrictions, and other measures.

Transportation Information and Planning Support (TRIPS)

Two-way Left-Turn Lane (TWLTL)

Urban Growth Area (UGA)

Vertical Alignment - The grades the road takes as it passes over terrain. Typically the vertical alignment attempts to use the natural contours and geography of the area.

Washington Administrative Code (WAC)

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